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THE BRONZE SWORDS OF IRELAND

IAN COLQUHOUN

A thesis presented posthumously for the degree of
Doctor of Philosophy
Department of Archaeology
University of Durham
England
June 2015

THE BRONZE SWORDS OF IRELAND

IAN COLQUHOUN

ABSTRACT

The leaf shaped bronze sword is one of the most distinctive and evocative weapons of prehistory. The type appears throughout Western Europe in the final centuries of the second millennium BC only to disappear as an artefact type with the widespread introduction of iron weapons hundreds of years later. The widespread distribution of the bronze sword points to the increasingly martial nature of Late Bronze Age society, a feature echoed in Ireland by the appearance of defensive landscape features.

The expansion and development of Irish archaeology in the last fifteen years has rather left metalwork and swords, in particular, behind, as the main focus has moved away from artefacts towards settlement. It is only in recent years that interest has revived in the Bronze Age and bronze metalwork. Over six hundred swords have been recovered from Ireland, the vast majority being nineteenth century finds. Most belong to the equivalent of the Ewart Park type in Britain – but there are significant numbers of early flange hilted weapons and of the late Gundlingen type.

This thesis represents the first major study of the development and context of the Irish swords since George Eogan's work (Eogan 1964). It examines, in addition to those weapons listed in Eogan's catalogue, all of the more recent discoveries, and takes as the central theme the biography or life cycle of a sword, from manufacture through to use and deposition, with the emphasis on the latter. The thesis represents a companion to the comprehensive analysis and catalogue of Bronze Age swords in Britain, co-authored by myself and Colin Burgess (Colquhoun and Burgess 1988).

Following the death of Ian Colquhoun on 7th June 2013, the thesis was compiled, formatted and submitted posthumously by his supervisors – Dr Benjamin Roberts and Dr Tom Moore.

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The Bronze Swords of Ireland

Ian Colquhoun

Posthumous PhD Thesis Submission Statement

Dr Benjamin Roberts

Dr Tom Moore

Introduction

The thesis by Ian Colquhoun entitled ‘The Bronze Age Swords of Ireland’ is submitted posthumously here by his supervisors Dr. Benjamin Roberts and Dr. Tom Moore. Ian had started his PhD as a part-time student in October 2007. Due to treatment for the sudden onset of cancer in September 2010, he was granted three periods of concessions from his PhD: October 1st 2010- March 1st 2011; March 2nd 2011 – 30th September 2011; and March 22nd - August 2012. His revised submission date would have been October 2016. Despite his illness, Ian continued to work hard on his thesis and data collection, only ceasing work working on it shortly before his passing on June 7th 2013. Following the careful consultation of the Durham University guidelines regarding posthumous PhD submissions and awards and a review of the substantial progress on his PhD made by Ian Colquhoun, the decision was taken by the supervisors and his wife, Carol Colquhoun, to prepare the PhD for posthumous submission.

Preparations for Submission

In line with the Durham University guidelines on the posthumous submission of PhD theses, no additional text, tables, figures or references were added.

The first task undertaken for submission was to compile and organise the text and bibliography. The Title and Table of Contents were taken from the existing PhD thesis text and – following the completion of the PhD thesis submission - page numbers were added. The thesis structure, chapter titles and planned word counts for each chapter had already been outlined in a Thesis progress report dated to 29th February 2012 and the Report for Postgraduate review dated 3rd May 2013. The available text was organised according to this report with the proposed word counts

enabling an assessment on thesis progress to be made (see below). The text for the Abstract, Chapters 1 and 3 was taken from a PhD Thesis outline by Ian Colquhoun dated 8th February 2009. Chapters 4, 5 and 6 had been either completed, or in the case of Chapter 6, was very close to completion. No additional text was added. The bibliography was originally in three parts following Chapters 4, 5 and 6. For the thesis submission, these were amalgamated into a single bibliography. No additional references were added. The font and text size were standardised and page numbers added.

The second task undertaken to prepare for submission was to digitise the substantial catalogue of Bronze Age swords from Ireland that now forms Appendices A-C. The data for the PhD thesis comprises the master spreadsheet (Appendix A), the catalogue of drawn swords (Appendix B) and the catalogue of sword moulds (Appendix C). The first part of the catalogue (Appendix A) is an excel spreadsheet which records the following information: provenance (where known), county (where known), Museum number, collection, Eogan Catalogue number (following Eogan (1965), the last major work on Bronze Age swords in Ireland), Eogan Class, Type (Ian Colquhoun's scheme), status, length, maximum blade width, shoulder width, weight, patina, hilt arrangement, condition, find circumstances, associations, bibliography and research notes. Nothing was added to Appendix A.

The second part of the catalogue (Appendix B) comprises highly detailed 1:1 scale drawings of each sword recorded during his extensive visits to museum collections in Ireland and Britain. These were to be inked later for publication. Digital photos were also taken of each sword though these were not intended for final thesis submission. In total, there were 612 detailed pencil drawings of 584 swords and sword fragments had been prepared by Ian Colquhoun. In addition there are several photocopied drawings (nos. 151, 616, 617, 618) of four swords which were used in the catalogue. The 1:1 scale of the pencil drawings meant that the vast majority could not be scanned in their entirety but could only be scanned in halves, or occasionally thirds. These scans then had to be digitally re-united to form the complete image. This painstaking yet invaluable work was undertaken during November-December 2013 by Dr. Alejandra Gutiérrez, at the behest of the Head of Department, Professor Christopher Gerrard. Each image was subsequently re-sized, numbered and assembled into a

coherent catalogue by Dr. Benjamin Roberts. The numbering system employed to order the sword images is the same numbering system employed by Ian Colquhoun in the master spreadsheet comprising all the details that he had compiled on each sword that forms Appendix A. Each sword drawing had been labelled with an individual museum accession number which could also be found on the master spreadsheet enabling the numbering of sword images to be cross-checked. No additional drawings/images were subsequently added to Appendix B. The third part of the catalogue (Appendix C) comprised the sword moulds. This was added unmodified.

The third task undertaken for submission was to select the supporting material. There are two highly relevant publications by Ian Colquhoun that are submitted together with the PhD thesis. The first is ‘The Swords of Britain’ – a comprehensive investigation and catalogue of Bronze Age swords in Britain by Ian Colquhoun and Colin Burgess (Colquhoun and Burgess 1988). The second is a book chapter deriving from the PhD thesis by Ian Colquhoun taken from conference proceedings entitled ‘Bronze Age Warfare: Manufacture and Use of Weaponry’ (Colquhoun 2011 – see Appendix D).

Thesis Progress

As the supervisors of Ian Colquhoun, we propose that the main objectives set out below (and in Chapter 1) of this PhD thesis have been achieved by the submitted text in Chapters 4, 5, 7, 8 and Appendices A-C. The supporting publications (Colquhoun and Burgess 1988 – copies available to examiners; Colquhoun 2011 – see Appendix D) demonstrate that many of the gaps in the submitted text had already been published elsewhere by Ian Colquhoun.

- 1 To establish a biography of the Irish sword (see Chapters 4, 5, 6 and 7)
- 2 To evaluate how swords started their life cycle (see Chapter 4)
- 3 To examine the different uses of the sword (see Chapters 5 and 7)

- 4 To assess the death of the sword, paying particular attention to deposition and location (see Chapter 6)

Data Gathering

At the core of the PhD thesis is the detailed first-hand examination, recording and collection of data relating to each of 719 Bronze Age swords known to have been found in Ireland (see Appendices A-C). This is substantially higher than the Bronze Age sword corpus from Ireland assembled by George Eogan of 623 swords (Eogan 1965). The evidence compiled in Appendices A-C demonstrates that 584 swords have been personally examined, photographed, drawn and fully recorded by Ian Colquhoun during an extensive programme of museum visits throughout Ireland, Britain, Berlin and Copenhagen from May 2009. Financial assistance for these visits was received from the Rosemary Cramp Fund and the Prehistoric Society John Coles Award. This represents over 85% of the total corpus and, given the occasional failure by museum curators to locate listed swords in museum collections (e.g. four registered swords were unable to be located in Cork Museum alone), this percentage should be slightly higher. In addition, he noted in his Report for Postgraduate Review dated 3rd May 2013, that he had access to good drawings or photographs of an additional 50 swords. The swords which had yet to be recorded are primarily in the collections of museums in southern England (Ashmolean, Pitt Rivers, Farnham, Bristol, Devizes, Salisbury, Plymouth and Newcastle), several in Ireland which were not located/available on earlier visits (e.g. Ulster Museum and National Museum of Ireland), and several in private collections.

Writing

The writing for the PhD thesis had been done one chapter at a time with the priority given to the core chapters analysing the data. The total number of words written by Ian Colquhoun encompassing the abstract and chapters but excluding the table of contents and bibliography is 26555. However, when combined with relevant text published elsewhere by Ian relating to Chapter 2 (c. 4500 words) and Chapter 7 (c. 25-30,000 words whose content would make a major contribution to the missing c. 7000 words), the written submission is c. 36-37000 words. The bibliography is

incomplete, yet at c. 130 references still fairly extensive, and encompassing virtually all the references directly relating to Bronze Age swords in Ireland. The PhD thesis ‘The Bronze Swords of Ireland’ was intended to be complimentary to the comprehensive monograph ‘The Swords of Britain’ of which Ian Colquhoun was the lead author earlier in his career (Colquhoun and Burgess 1988).

Chapter 1 (Introduction) comprises sub-sections of ‘Aims and Objectives’ and ‘Reasons for the Study’. The former had already been written in summary of c. 300 words by Ian Colquhoun in the Thesis outline document and is reproduced in the submission.

Chapter 2 (History of Research) comprises the text of c. 250 words within the Thesis summary by Ian Colquhoun which is reproduced in this submission. This needs to be taken together with and the more up-to-date and extensive section on ‘Previous Research and Typology’ of c. 1000 words within a chapter entitled ‘Irish Swords: Use and Abuse’ published by Ian Colquhoun in 2011 (Colquhoun 2011 – see Appendix D). Finally, within Colquhoun and Burgess (1988) is an extensively referenced and concisely written chapter of over 3500 words entitled ‘History of Research’ which actually covers past research on Bronze Age swords in both Britain and Ireland (Colquhoun and Burgess 1988, 5-10). It can be therefore demonstrated that the vast majority of Chapter 2 had already been written and published elsewhere.

Chapter 3 (Methodology) had also been outlined in the thesis summary document and totals c. 500 words.

Chapters 4, 5 and 6 encompassing the major stages in the biography of a sword (Birth, Life and Death) have been either completed, or in the case of Chapter 6, was very close to completion. The text from these three chapters totals over 25,000 words and is highly polished and closely referenced. Extensive use is made of examples drawn from the data in Appendices A-C. However, there is only limited use made of figures and tables and there are none of the intended maps as the data gathering was not complete. Discussions between Ian Colquhoun and Dr Tom Moore led to the agreement that a proposed additional chapter (Warfare in Late Bronze Age Ireland) would be incorporated into Chapter 5.

Chapter 7 analysing the typology of the Bronze Age swords in Ireland is only partially complete with over 3000 words of the 10,000 planned words. However, the vast majority of the typological scheme to be used in the thesis is clearly evident. Whilst the Type column of the master spreadsheet (Appendix A) has only been filled in for Gundlingen swords, the vast majority of drawings of the recorded swords had been placed into envelopes labelled with a Type in what Ian had indicated in supervisions was an ongoing classification process (and is therefore not reproduced for this submission). As the Bronze Age sword types and typological schemes in Ireland are closely paralleled in Britain, the majority of the relevant research had already been conducted and published in Colquhoun and Burgess (1988). The internal structure for Chapter 8 with sub-sections on Type, Origins, Dating and Distribution mirrors the earlier publication on Swords of Britain (Colquhoun and Burgess 1988, 11-121). These sections on the Type, Origins, Dating and Distribution alone within this monograph, excluding the catalogue, comprise c. 25-30,000 words. Ian had also conducted a recent concise review of the typology which highlighted minor revisions to the typological scheme published by Eogan (1965) as well as Colquhoun and Burgess (1988) (Colquhoun 2011, 107-110 – see Appendix D). Hence, whilst certain sword types have already been relatively well covered and others either partially covered or not yet present in the submitted text, it can be demonstrated that much of Chapter 8 had already been published elsewhere by Ian Colquhoun.

Chapter 8 (Discussion) and Chapter 9 (Conclusions) had yet to be written.

Conference Papers, Publications and Tutoring

Ian Colquhoun presented papers relating to his PhD at: the Bronze Age Studies Group (Bavaria, May 2009); Warfare in Bronze Age Europe conference (Vienna, November 2009); Theoretical Archaeology Group (Durham, December 2009). He also presented a conference paper analysing the depositional contexts of Bronze Age swords in Northumberland to the Bronze Age Studies Group (Wessex, May 2010). He published one paper relating to his PhD (Colquhoun 2011) in addition to a publication on prehistoric flint at Sandy Bay, Northumberland (Colquhoun 2010) and completing and submitting one paper on the Northumberland swords which is currently in press

and will be published in *Northern Archaeology* –the journal of the Northumberland Archaeology Group and of which he was the editor. Earlier in his archaeological career, Ian was the lead author on the definitive monograph on Bronze Age swords (Colquhoun and Burgess 1988) and several key articles on Late Bronze Age metalwork in Britain (see below).

Full Bibliography of Ian Colquhoun

Colquhoun, I. (1978). Bronze Age Metalwork in Somerset: A Catalogue of Stray Finds. *Proceedings of the Somersetshire Archaeological and Natural History Society* **122**: 83 -101.

Colquhoun, I. (1979). The Late Bronze Age Hoard from Blackmoor, Hampshire. In Bronze Age Hoards: some finds old and new (British Archaeological Reports 67). Burgess, C. & Coombs, D. Oxford: Archaeopress. 99-116.

Colquhoun, I. (1981). A Late Bronze Age Tanged Razor from Carlisle Museum and Class IV Razors from Britain. *Northern Archaeology* **2**: 11–14.

Colquhoun, I. (2010). Flints from Sandy Bay, Northumberland. *Northern Archaeology* **21**: 31-38.

Colquhoun, I. (2011). Irish Swords: Use and Abuse. In Bronze Age Warfare: Manufacture and Use of Weaponry (British Archaeological Reports International Series 2255). Uckelmann, M. & Mödinger, M. Oxford: Archaeopress. 107-116.

Colquhoun, I. and C. B. Burgess (1988). The Swords of Britain. Prähistorische Bronzefunde IV, 5. Munich, C.H. Beck.

Colquhoun, I. (in press, 2015) Swords and the landscape in Late Bronze Age Northumberland. *Northern Archaeology*

Ian was also a first year tutor for Discovering World Prehistory at Durham University and a lecturer in Adult Education at the University of Sunderland Centre for Lifelong Learning.

PhD Criteria

The current PhD criteria are:

“Candidates are required to demonstrate the ability to conduct original investigations, to test or explore ideas / hypotheses (whether their own or those of others), and to understand the relationship of the theme of their investigations to a wider field of knowledge. The thesis should include an original and significant contribution to knowledge, for example through the discovery of new knowledge, the connection of previously unrelated facts, the development of new theory, or a new analysis of older views. It should also include substantial matter worthy of publication, though it need not be submitted in a form suitable for publication”

As the supervisors of Ian Colquhoun, we are confident that his thesis not only meets the criteria above but is also over 75% complete when the data recording and collection and the submitted and previously published texts are taken into consideration. It already represents an original and significant contribution to knowledge that goes far beyond the limited catalogue of the last major publication in the field (Eogan 1965) in terms of data quality, range of analysis and interpretative depth. The innovative use of theory and method of object biographies in the PhD thesis has already served to highlight previously unappreciated or unknown patterns and insights into the production, use and deposition of swords in Bronze Age Ireland.

Substantial progress has already been made to record the remaining c. 15% of Bronze Age swords from Ireland. In addition, funding and support for the final publication as a monograph has started to be donated from Bronze Age scholars from across Europe. Our contention - as well as the contention of major senior scholars in Ireland, Britain and continental Europe - is that the finished thesis would have made a major contribution to knowledge. As has been noted by many of our Bronze Age colleagues, whilst we were the supervisors for Ian Colquhoun's PhD on Bronze Age swords, the majority of what we, and virtually all other British scholars, knew about the subject was derived from Ian's earlier research (Colquhoun and Burgess 1988).

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1. INTRODUCTION

1.1 AIMS AND OBJECTIVES

The leaf shaped bronze sword is one of the most distinctive and evocative weapons of prehistory. The type appears throughout Western Europe in the final centuries of the second millennium BC only to disappear as an artefact type with the widespread introduction of iron weapons hundreds of years later. The widespread distribution of the bronze sword points to the increasingly martial nature of Late Bronze Age society, a feature echoed in Ireland by the appearance of defensive landscape features.

The expansion and development of Irish archaeology in the last fifteen years has rather left metalwork and swords, in particular, behind, as the main focus has moved away from artefacts towards settlement. It is only in recent years that interest has revived in the Bronze Age and bronze metalwork. Over six hundred swords have been recovered from Ireland, the vast majority being nineteenth century finds. Most belong to the equivalent of the Ewart Park type in Britain – but there are significant numbers of early flange hilted weapons and of the late Gundlingen type.

This will be the first major study of the development and context of the Irish swords since George Eogan's work of the 1960s. It will examine, in addition to those weapons listed in Eogan's catalogue, all of the more recent discoveries, and will take as its central theme the biography or life cycle of a sword, from manufacture through to use and deposition, with the emphasis on the latter. My *Prahistorische Bronzefunde* volume on the British swords, co-authored with Colin Burgess, provides a useful compass for arranging this analysis.

The main objectives of the research are:

- 1 To establish a biography of the Irish sword
- 2 To evaluate how swords started their life cycle

- 3 To examine the different uses of the sword
- 4 To assess the death of the sword, paying particular attention to deposition and location

1.2 Reasons for this Study

2. HISTORY OF RESEARCH

The Irish swords attracted attention from the early years of antiquarian research. *Archaeologia* for 1775 contained the drawings and descriptions of two fine Gundlingen type swords from the Bog of Cullie, Co Tipperary. W R Wilde's Catalogue of the Antiquities in the Museum of the Royal Irish Academy, published in 1861, included a chapter on swords, which he acutely recognised as being prehistoric in date. John Evans' seminal 1881 volume on the *Ancient Bronze Implements, Weapons and Ornaments in Great Britain and Ireland* included many fine engravings and brought together the work of nineteenth century antiquaries.

Twentieth century studies concentrated on development in Britain and Europe until the publication in 1965 of George Eogan's doctoral thesis as the National Museum of Ireland's *Catalogue of Irish Bronze Swords*. Since then study of the Irish material has concentrated on aspects of use and, more recently, disposal. Sue Bridgford looked at wear analysis and concluded that swords were actually used and not just for display. Katherina Becker studied swords as a component part of hoard deposition. Barry Molloy continues his experimental work to show how weapons were used in practice. Swords from Irish rivers have been examined by Lorraine Burke and the manufacture of bronzes as a group was studied by Sean O Faolain in a recent *BAR* volume. John Waddell's comprehensive study *The Prehistory of Ireland* examined swords and he commented that they required further study in the light of recent research.

3. METHODOLOGY

The aim of the data collection is to produce an up to date electronic catalogue of all known Irish swords including their provenance, find details where known, measurements and bibliography.

The basis for the catalogue is George Eogan's *Catalogue of Irish Bronze Swords*, published in Dublin in 1965. The information from this catalogue is currently being transferred to the computer catalogue. More recent published finds are also being added. Museum catalogues will be examined for other unpublished swords discovered since the 1960s. Bibliographical references are retained in Endnote and cross reference with the catalogue.

The catalogue records the following information: provenance (where known), county (where known), Museum number, collection, Eogan Catalogue number, Eogan Class, Type (my sorting), status, length, maximum blade width, shoulder width, weight, patina, hilt arrangement, condition, find circumstances, associations, bibliography, and research notes.

The catalogue uses Open Office which is similar to and compatible with Microsoft Access.

I intend to redraw all the complete swords or significant fragments which I am able to locate and where they are accessible. This will involve an initial pencil outline drawing, then shading in the details of the hilt, a section of the blade, and the tip. Measurements will be made using a tape and vernier caliper, and weights taken using electronic scales. Associations will not be drawn. All swords drawn will also be digitally photographed.

I also have access to drawings of Irish swords made by Colin Burgess in the 1960s to use where the original swords are not accessible. Final drawings will be pen with stipple shading.

These will be recorded as digital photographs. With the exception of swords from excavated sites, it is unlikely that I will be able to locate an exact provenance for more than a handful of swords, so I am interested in the position of findspots within the wider landscape and the potential proximity to other archaeological sites and features. The Ordnance Survey of Ireland Discovery Series at a scale of 1:50,000 will provide the basis for site location. Google Earth will also be used where appropriate.

The following methodology will therefore be used:

- 1 The creation of an electronic catalogue to hold all the necessary data relating to each sword and sword mould in relation to find circumstances and individual characteristics.
- 2 The recording, drawing and photographing of swords either recently discovered or requiring further examination.
- 3 A study of the current state of knowledge of the manufacturing process and a comparative analysis of the data.
- 4 The assessment of published data on sword composition to establish use.
- 5 An evaluation of experimental work.
- 6 Examination of the reasons for death.
- 7 An analysis of the locations of death
- 8 The creation of a bibliography using Endnote.
- 9 An investigation of how the history of research has affected our current knowledge on swords

4. THE BIRTH OF THE SWORD

4.1 INTRODUCTION

This chapter provides a perspective on the current evidence for bronze sword production during the Late Bronze Age in Ireland. It views the manufacture of a sword as the birth of an artefact which develops a life and status of its own within a society conscious of the importance of prestige, power and display. Weapons played a central role in this scenario (Waddell 2000, 225). The chapter is divided into three parts. The first examines the extraction of the raw materials from which bronze is made, mainly copper and tin. Secondly, the process of producing the bronze to make the swords will be studied. Finally, the evidence for the status in society of those people who had a role in the birth, however small – the miners and smiths – will be reviewed. All radiocarbon dates given in the text are calibrated.

The birth of such a prestigious weapon as a sword is considered here to be a process that was not just technological but involved also an input of a more spiritual and probably prescriptive nature. Anthropological studies have repeatedly stressed the rituals that surrounded the processes of extraction, processing and manufacture, and the rules and taboos concerning gender or status that allowed or forbid the involvement of groups or individuals. In this context the birth is in itself a process that imbues people with distinctive roles, each playing a part in the magical transformation of base material into a weapon which is destined to have a life of its own. A successful birth is likely to have needed the beneficial intervention of gods, spirits, ancestors or living individuals. It would have depended on the correct procedure being adopted for each stage of the manufacturing process. Historical records of ceremonies practised in early twentieth century Africa by groups of social complexity akin to that of late prehistoric Ireland may provide some potential parallels. One example is Katanga in the Congo, where, in 1910, the Belgian Catholic missionary Monsignor de Hemptinne witnessed the whole procedure from mining to casting copper ingots overseen by a *maitre sorcier* who made sure that all the requisite procedure was undertaken correctly (Herbert 1984, 34). A failure to undertake the process properly could have serious consequences.

In practical terms the manufacture of swords in bronze was a lengthy, complex, time consuming and skilled process. The procedure involved the extraction of ores and minerals, washing and crushing the ore, the transportation of copper and tin over long distances, melting, casting using high temperatures, and finishing the product. There was also an element of recycling, as used bronzes were broken up and transported where necessary (although there is limited evidence for the use of founders' hoards in Ireland compared to Britain), to be remelted and formed into new weapons or tools. In this context the death of one artefact lead to the birth of another, a factor which we must consider would not have escaped the minds of prehistoric people

4.2 METAL EXTRACTION AND PROCESSING

Bronze is an alloy of around 90 to 95 per cent copper and 5 to 12 per cent tin. Copper, therefore, is the main constituent. The first steps in the birth of the sword were the extraction from the earth of the raw material from which the sword was cast, the copper and tin. In order to fully appreciate the potential importance of the bronze sword to Late Bronze Age society, we need to explore the archaeological evidence for mining and processing. This will be examined under five headings. Firstly, the copper and tin resources available to Irish metalworkers. Secondly, the archaeological research on prehistoric mining in Ireland will be explored and compared with evidence from elsewhere in Europe. Thirdly, processing and smelting of ores will be examined. The final section deals with the amalgamation of the two metals, copper and tin, to produce bronze in the melting process, and also takes into account the role of recycling using artefacts.

4.2.1 Copper and tin resources

The sources for copper bearing ores in Europe have been the subject of detailed investigation over the last few decades. While there are large and well investigated deposits in central Europe, Ireland and Britain too have known substantial natural

resources (Harding 2000, 198; fig 6.1: Ottaway and Roberts 2009, 200 fig 4.8a). In Ireland there are, or were, deposits along most of the Irish coast, with particular concentrations in Wicklow, Waterford, west Cork, Kerry, and western Galway (Jackson 1978, Map 1: Ó Faolain 2004, fig.6.1). Inland there are concentrations to the west of Lough Neagh and the lower reaches of the Shannon. Two large areas stand out as being copper-free; inland Cork and the counties of the Midland plain. There are no secondary sources of copper, such as alluvial stream deposits; all the above sources are bedrock deposits which would have initially been noticed as surface outcrops (O'Brien 1996, 11). Once fully exploited, these would have been followed to ore bearing veins requiring more labour intensive extraction, normally underground. Copper ores are therefore often found near to native copper deposits.

The second main component of bronze was tin. This was a rarer commodity. The main source has been and still is the mineral cassiterite which can be mined as a vein deposit or recovered through panning from the alluvial beds of streams as pebbles, weathered from vein cassiterite (Meredith 1998, 23). This mineral occurs with granite, the rock which underpins the geology of the western seaboard of Europe. The primary source, therefore, for the whole of western Europe in prehistory is believed to have been the panning of stream tin from the vein deposits in Cornwall and the west of Devon, although there is no archaeological evidence for prehistoric workings. There is, however, one recorded instance of tin slag from Cornwall, from an Early/Middle Bronze Age burial at Caerloggas (Tylecote 1987, 307-9) which at least suggests local smelting, presumably from locally mined tin. Other known major sources of cassiterite are in Brittany and the Iberian peninsula (Meredith 1998, 29, fig 5.1: Kristiansen 1998, 30, fig.11), though, once again, there is no archaeological evidence for prehistoric exploitation in either area.

4.2.2 Mining

While copper bearing ores are therefore widespread over much of Ireland, the majority of the archaeological evidence for exploitation of the ores comes from O'Brien's work in the South West. At Mount Gabriel in west Cork radiocarbon dates from wood and charcoal recovered from the workings suggest that the main period of

exploitation was between 1700 and 1500 BC (O'Brien 1996, 37). Any evidence for the other resources (especially the eastern deposits) being worked in antiquity is based on nineteenth century accounts of what were called by contemporary miners 'old men's workings' (O'Brien 1996, 9). These were old workings of indeterminate date, in practice belonging to a period beyond living memory at the time using what were considered to be primitive methods. There is therefore nothing to show they were worked specifically in prehistory.

There is an absence of evidence for copper mining during the Late Bronze Age either in Britain or Ireland. Even the extensive and well explored workings at the Great Orme in North Wales have provided few dates later than the eleventh century BC (O'Brien 1996) and most cluster around the fourteenth century BC (Lewis 1998, 49; Chapman 2006). These Early and Middle Bronze Age dates are notable because most of the bronze metalwork from Ireland – and indeed Western Europe – can be dated to the Late Bronze Age. It has been argued that one difficulty with recognising later prehistoric workings is that they have continued in use and were worked out in later historical periods, leaving no archaeological trace (O'Brien 1996, 57). This does not, however, explain why the earlier workings should survive unscathed. However, there is evidence for mining throughout the entire Bronze Age from central Europe, such as a number of known sites in the Mitterburg area of the South Tyrol (Harding 2000, 211). It is possible that central European sources supplied the British Isles through trading networks built up over hundreds of years, perhaps as a result of an exchange process involved in the supply of tin from south west England. This interpretation is strengthened by the results from metal analyses, which suggest that the main source of copper for Ireland and Britain in the Late Bronze Age was central Europe, whether in its pure form or already alloyed with tin as recycled bronze (Harding 2000, 189, 204; Bradley 2007, 224). Thus Late Bronze Age swords made in Ireland may have been cast from a mix of British tin and central European copper.

Regarding the deposits of cassiterite (tin oxide) in Ireland, these are located in the Wicklow Mountains, the Mourne Mountains, and Galway Bay. However, tin occurs in all these places only as traces and until recently it was believed that these sources were unlikely to have been worked in the Bronze Age (Penhallurick 1986, 111). Jackson (1979, Map 1) has also mapped the tin sources in Ireland and is also of the

opinion that the majority of the sites would have been too difficult to exploit successfully. Some controversy surrounds the possibility of tin having been streamed from cassiterite in the Gold Mines River at Ballinvally in County Wicklow (Waddell 2000, 140; Harding 2000, 200). The cassiterite occurs here alongside gold in the alluvial sands and gravels. Jackson thinks it improbable that gold panners would have been unaware of the abraded crystals of cassiterite which reportedly can be found alongside the gold in the river beds, and that they would therefore have gathered the tin. When the gold resources here were exploited using stream panning methods during the 1930s as part of a state sponsored unemployment relief programme, cassiterite was, by volume, found to be as common as the recovered gold (Jackson 1978, 123). Budd, however, has also examined the potential for this tin source and has argued that, firstly, the quantities of cassiterite were not as substantial as Jackson suggested and, secondly, that their exploitation would not have been practicable in prehistory because the tin mineralisation is not derived from the same source as the gold and the two would not necessarily be present together (Budd et al 1994). That Ireland is a major source of Middle and Late Bronze Age goldwork is undisputed (Cahill 1995; Waddell 2000, 243). What is less clear is where the gold came from, as there is no evidence for prehistoric exploitation at the Gold Mines River (Penhallurick 1986, 113-4).

Recent research published in *Archaeology Ireland* has suggested that the western valleys of the Mourne Mountains in County Down were the major source for Early Bronze Age gold in Ireland (Warner, Chapman, Cahill and Moles 2009: 2010). This is because analysis of the composition of gold from this area matched the proportion of silver and copper present in Early Bronze Age gold ornaments. In addition tin is minutely but measurably present in a large number of Irish lunulae (averaging around 0.04%). However, because of the way the gold collects in the Mournes, it is more likely to have been 'mined' from fluvial deposits than panned from the streams and rivers. The authors discovered that cassiterite can collect with the gold in these deposits. Collecting minerals in this fashion is known as streaming. Whether the miners were originally looking for tin or gold is unknown, but the authors believe that the Mournes may have been a significant source of tin in the Early Bronze Age at least, and it is possible that the area remained a source into later prehistory.

Wherever the copper and tin came from, the initial step in getting it out of the mineralised rock was the same. This was removed from the underground faces by 'fire setting', a system of using fires set against the faces causing them to weaken. Water could then be used to hasten the fracturing effect. O'Brien (1996, 22) has calculated that the prehistoric operations at the copper mines at Mount Gabriel in Kerry would have consumed large amounts of timber in fire setting alone, making a steady supply of timber a prerequisite for successful extraction. In fact, large amounts of timber would have been needed throughout the entire procedure of mining, processing, smelting and casting.

4.2.3 Crushing and smelting

Once the mineralised rock or 'gangue' had been freed, the next step in producing metal suitable for casting is converting the gangue into a concentrated ore suitable for smelting. In the Bronze Age this was done by crushing the extracted rock using stone hammers and anvil slabs, and then selecting the visibly mineralised rocks. Thousands of stone hammers have been found at the Great Orme and at Mount Gabriel, normally in mounds outside the mine entrances (O'Brien 1996,40) clearly indicating that this work was done on site. By themselves these stone hammers are impossible to date and are evidence only of 'primitive' mining using methods which, it has been suggested, continued into late Mediaeval times (Briggs 1988, 327). An alternative modern process of ore extraction involves floating the gangue in chemicals or water, and it is possible this method was also used in prehistory, though it is difficult to show archaeologically that this was practised. Such 'washing' sites have been the subject of recent studies on the Great Orme where there are a number of wells suitable for this activity within a three kilometre radius of the mines (Chapman 2006). Eogan (1993, 92) has suggested that at Mount Gabriel a post hole structure with a wooden trough within Mine 3/4 may represent washing activity.

Processed ore contains minerals and impurities which are not needed or are considered undesirable in the production of copper. Smelting is the process whereby

the concentrated ore produced by crushing is reduced to a state suitable for a smith to use to cast artefacts. The process involves the use of a large quantity of charcoal, perhaps a ratio of 15: 1 charcoal to ore or even higher, to concentrate the metal in one place by removing the unwanted material within the ore. This is done by placing the ore in a crucible within a furnace and firing the furnace with charcoal to a temperature of 1083 degrees Celsius (Harding 2000, 216). The waste is allowed to run off producing slag. Copper is then concentrated at the bottom of the crucible in the shape of a bun ingot. Copper sulphide ores, such as those from south west Ireland, may also have required roasting to remove the sulphur and convert the ores into copper oxide (Ottaway and Roberts 2009, 206).

There is no evidence for Bronze Age smelting in Ireland, yet it is an essential part of the process of manufacture. Slag is inevitably produced at some stage during the ore to metal process, is virtually indestructible, yet is curiously almost entirely absent from prehistoric contexts throughout Ireland and Britain (Craddock 1986; O'Brien 1996, 31; Harding 2000, 216). In Britain the only slag of possible prehistoric date comes from a site excavated in the 1990s at Pentwryn on the Great Orme in North Wales (Roberts 2002, 31; Chapman 2006) where over a hundred small copper rich fragments were found, although unfortunately most of these are more likely to relate to later Mediaeval activity. The furnace itself has been dated to 1580 BC from charcoal fragments. The working area was a small platform at the foot of a cliff over a kilometre away from any known mining site. This paucity of slag can be contrasted with the situation elsewhere in Europe. In the Mitterberg area of the Austrian Alps prehistoric slagheaps have been recognised since the nineteenth century (Herdits 2007) while Late Bronze Age settlements in southern Germany regularly produce evidence of slag in their vicinity as well as crucibles (Harding 2000, 216). This dilemma has been discussed by Timberlake (2003, 106; 2007, 34). He suggests, amongst other possibilities, that the small amounts of slag may have been finely crushed to release small quantities of copper and that the ore XXXX. An alternative explanation has been put forward by Meredith (1998, 19) who has pointed out that any very rich ore will produce almost no slag. It is possible that properly sorted Irish ores in prehistory may well have been very rich, thus producing little or no slag.

A third possibility exists, however. Smelting away from the mining sites could account for this curious absence of slag from the vicinity of the mines. The large amounts of charcoal needed in the smelting process would require large quantities of available timber. Lewis (1996) has argued that on the Great Orme it may have been more feasible to transport the ore to a location where wood was readily available than to transport charcoal fuel for smelting to the mine site, although there is no archaeological evidence for this. It has already been mentioned in connection with fire setting as part of the mining process that access to suitable supplies of timber may have been a problem on many of the Irish sites.

4.2.4 Melting and recycling

Melting involves the heating of copper and tin, or previously cast bronze, in a crucible. This produces a liquid alloy suitable for casting. The archaeological record in Ireland clearly shows that the alloying of copper with tin to produce bronze swords took place at locations well away from the known mining, processing and smelting sites. This means that the copper and tin had to be transported and presumably traded over large distances. Smelting produced bun or cake shaped ingots as the copper collected at the bottom of the crucible (Rowlands 1976, 7). These turn up occasionally in Late Bronze Age hoards, although many could equally be recycled bronze, such as the example in the recently discovered hoard from Berwick upon Tweed in northern England (Needham, Varndell and Worrell 2007). A plano-convex ingot in the hoard from Cooga, Co. Sligo is very close in size and shape to the base of a reconstructed crucible from Rathgall (Ó Faolain 2004, 23, pl 3.1). Two solid undecorated rings of pure tin together with bronze rings were found in the hoard from Rathinaun, Co. Sligo (Eogan 1983, 151). These may have served as tin ingots similar to the bronze or copper *ösenringe* common in central and northern Europe (Harding 2000, 218).

The evidence for recycling of used artefacts to provide bronze is difficult to identify in the Irish archaeological record. Waddell (2000, 201) has discussed the Roscommon Hoard, a large collection of scrap bronze pieces including at least one fragment of a sword blade. Robert Day, a Cork collector, was offered the hoard, allegedly

numbering 200 pieces, in 1870, but found the asking price for the entire assemblage too steep and bought only a selection. Where it came from in county Roscommon is unknown. Few other hoards appear to fit into this ‘scrap’ category. One example which includes a sword fragment is from Dreenan, Co.Fermanagh (Eogan 1983, no.76: Ó Faolain 2004, fig. 2b). This lack of evidence for recycling of used weapons and artefacts is remarkable given that ‘scrap’ or founders’ hoards can be found throughout Britain, though especially in the south, and are common on the Continent.

4.2.5 The Silent Miner

The long time span over which copper was exploited and the destruction of prehistoric workings by subsequent operations makes any analysis of how Bronze Age mining operated difficult. Both the population and the amount of copper and bronze in circulation must have varied throughout the Late Bronze Age. The number of people involved in metalworking would equally have fluctuated. The lack of radiocarbon dates and the difficulty of gauging the scale of mining operations at any particular period makes any estimate of the number of people involved at any one time impossible. It has been suggested that most of the mines in Ireland were small scale kin-based ventures located close to parent settlements and worked seasonally (O’Brien 2007, 29); this would have been mining at a local, domestic level (Briggs 1988, 331). In this scenario farming took priority and the mining work would have been based around slack times in the agricultural year. Mines would have varied in size and complexity, with many being little more than surface workings (O’Brien 1996, 56).

Prehistoric mining involved adults (and probably children) working underground in tunnels and passages which were difficult to access and potentially dangerous. This very inaccessibility was in itself perhaps a necessary start to the birth, an inherent feature of the necessarily protracted process of manufacture. Bradley’s description of the ‘axe factory’ sites at Great Langdale as places apart from the ‘sphere of everyday activity’ (Bradley 2000, 85) would have been equally applicable to Bronze Age mines. Ores came from the underworld, a place at the interface of life and death where most people, then as now, would have felt uncomfortable, if not afraid. This

fascination with locations at the limits of human can be traced from the Neolithic through to the Iron Age. In the Late Bronze Age echoes of this fascination with the underworld can be seen in the cave sites throughout Europe where bronzes as well as human remains were deposited in their hundreds, such as the Heathery Burn Cave in Co. Durham (Harding 2007).

4.3 SWORD PRODUCTION

Up to this point we have discussed the extraction of minerals and techniques of production of metal common to all types of bronze metalwork. The next stage was the process of birth, the translation of the raw material into a sword, in itself an object of power and prestige. Most evidence for sword production comes from northern and eastern Ireland, though it is of course possible that manufacture took place throughout the whole country, as bronzes can be cast anywhere. The limiting factors are expertise in the casting process, a ready supply of fuel and the wealth or power needed to be able to control or trade in the metal supplies. Casting at high status sites such as Dun Aonghasa suggests that a further point was the status required to be involved in the organisation or patronage of bronze weapon production, as opposed to tool or ornament manufacture.

4.3.1 Casting

Bronze can be cast into artefacts using a variety of processes involving moulds. These were normally made out of stone, clay or even bronze. The basic principle is that molten bronze is poured into the mould, the exact process depending on the product being manufactured. Experimental work, especially with swords, has provided much information and has been discussed in detail elsewhere (Ó Faolain 2004). The length and shape of swords makes the casting process particularly awkward. Clay mould fragments for different bronze types including swords have been found in various locations throughout Ireland and form the most common type of mould (Appendix C). Stone moulds for swords are known from the continent, but none for Ireland. The only example mentioned in the literature, provenanced merely as 'Ireland', has been

discussed by Eogan (1983, 189) and would have cast a blade with an ogival cross section more appropriate to a dirk than a sword.

Clay moulds were made in two pieces (called valves) normally comprised of two layers. The inner layer was made of fine clay into which a pattern was pressed while it was still soft. The outer layer was composed of a coarser grade of clay. To align the two halves corresponding depressions or projections were made on each valve. Further projections were left where holes were needed, for example the rivet holes on sword hilts. Once the two valves were fitted together the whole mould was baked, leaving a gate or funnel at one end to facilitate pouring in the molten metal. Sword moulds also needed a strengthening rod to stop the mould from breaking along the length. At Dun Aonghasa the clay used for the sword moulds appeared to be from a different source than the pottery from the site (Ó Faolain 2004, 36) suggesting deliberate selection of different clay for different uses, whether for practical or symbolic reasons. Quartz temper had also been added, presumably to increase the heat resistance of the mould material. Careful selection of suitable clay was equally evident amongst the mould debris from a bronze working site at Dainton, Devon, where clay had been brought from outside the immediate locality as that found locally was too fine to have withstood the casting process (Needham, 1980, 194). The selection of carefully chosen clays and tempers in domestic pottery manufacture is well attested in Ireland at sites such as Lough Gur, Co. Limerick (Waddell 2000, 210). Lime in the clay, for instance, makes for a poor casting (Dutch caster, per comm.)

4.3.2 Sword Mould Deposition

Deposition of complete swords will be discussed elsewhere, but here it is worthwhile considering more closely the deposition of moulds and mould fragments, as they represent the medium through which bronze smiths were able to practise their expertise and, as outlined below, may have had an intrinsic value. Once clay moulds had been used to make bronzes they could not, unlike bronze or stone, be effectively reused in bronze manufacture or recycled (Bridgford 1997, 101: Neil Burridge, pers. comm.). Swords are by far the commonest of the identifiable clay mould fragments for weapons found in Ireland, accounting for 75% (Ó Faolain 2004, Table 5.1). What,

then, is the significance about where the clay mould fragments listed in Appendix C were discovered? There are four obvious possibilities, all of which are of potential interest as they shed some light on the importance of the process of sword manufacture and the materials used. These possibilities are discussed below and put into diagrammatical form in Table 1:

- A They are the *in situ* remains of weapon production, the debris of manufacture.
- B They are the remnants of weapon production, intentionally deposited at the place of manufacture.
- C They have been deliberately collected at the place of manufacture and dumped elsewhere as industrial refuse.
- D They have been deliberately collected at the place of manufacture and intentionally deposited elsewhere to fulfil a function beyond that of the debris of production.

	Intentional Deposition	Unintentional Deposition
Place of Manufacture	B	A
Other than place of manufacture	D	C

Table 1: Deposition of Bronze moulds

The term ‘place of manufacture’ requires some clarification. Here it is taken to mean within the immediate area of production, that is within the building or structure within which the process took place. I hesitate to use the phrase ‘workshop’ for two reasons. Firstly, this implies a building used primarily for making artefacts in the modern sense, and this may not have been the case, as the building may have had other functions at other times, including habitation. A weekend spent at a bronze sword festival in September 2009 involved the casting of swords inside a replica prehistoric roundhouse. The ‘industrial’ activity took place comfortably around the ever present central hearth and the immediate environs of the house leaving no permanent evidence. It was also evident that there would have been no great disruption to the everyday activity of domestic life

Secondly, the whole process may have taken place outdoors, away from any building, perhaps at a location used only temporarily or intermittently. One such example is the use of older funerary sites such as the burial mound at Old Connaught, or the sand dunes at Whitepark Bay.

The first possibility listed above is that mould fragments are the *in situ* remains of weapon production, the debris of manufacture. Of the sites listed in Appendix C, most appear to have had a connection with manufacture. Rathgall has been interpreted as a 'major workshop' (Waddell 2000, 273) as hundreds of mould fragments, as well as lumps of waste bronze, gold artefacts and a couple of ingots all came from a black occupation layer within a large roundhouse. This material can therefore be realistically interpreted as the remnants of production within what seems to have been a site of high status, to judge from the other finds such as gold, glass beads and amber. Dun Aonghasa, in a commanding position on a high sea cliff, has also been interpreted as a high status site (Waddell 2000, 221). This site dominates the sea approaches the western sea approaches to the Aran Isles and affords extensive views along the west coast of Ireland (O'Sullivan and Breen 2007, 83). The sword mould, moulds for other bronzes, and crucible fragments all indicate that at least part of the fort was being used for manufacturing weapons and ornaments, namely bronze swords, spearheads, sunflower pins and bracelets (Ó Faolain 2004, 57). The clay mould material here can therefore be interpreted as debris. The moulds from Lough Eskragh and Bohevny suggest that one function at least of crannogs was for the production of bronze weapons, though, as lake levels have fluctuated since the Bronze Age, the presence of moulds may equally indicate lakeside manufacture in the vicinity of the crannogs (Dixon 2004, 25). The moulds from White Park Bay on the north coast of Ulster show that bronze manufacture was taking place amongst the extensive sand dunes, either in a building or outdoors.

The second possibility suggested is that the mould fragments are the remnants of weapon production, intentionally deposited at the place of manufacture. Intentional in this context means moulds which appear to have been placed in a location at the place of manufacture for a reason and not just left as casual debris. It is difficult to see how any of the Irish moulds listed here could be fitted into this category. For instance, the

material quoted above from Rathgall, Lough Eskragh and Bohevny appears as debris rather than being deliberately or carefully buried or placed.

The third suggestion is that the mould fragments were deliberately collected at the place of manufacture and dumped elsewhere as unwanted industrial refuse. This option therefore deals with the deposition of moulds away from the site of production. Dumping, for example, could account for some of the material discovered from the periphery of crannogs such as Lough Eskragh, although this could also be the result of lakeside manufacture. Recent studies have examined the concept of refuse in the late prehistoric context in some detail and questioned whether people in prehistory viewed used material such as clay mould fragments simply as waste in the modern sense (Hill 1995). Here it is worth considering the ‘midden’ sites which have been recognised in southern England, such as Potterne (Lawson 2000) and East Chisenbury (McOmish 1996) in Wiltshire. These date to the Late Bronze Age/ Iron Age transition.

Metalwork and fragments of clay moulds and crucibles not directly connected with production have been recovered from what is in essence a huge accumulation of used organic and inorganic material which seems to have been the focus of collective activity from the beginning of the Late Bronze Age to the early Iron Age. These were probably sites for regular communal feasting on a large scale. The amount of material accumulated would have been sufficient to make these sites a landscape feature in themselves. Curiously the bronzes found in the fill are tools rather than weapons. This may suggest a dichotomy between sites chosen for tool and weapon production.

The final option is that the mould fragments were deliberately collected at the place of manufacture and intentionally deposited elsewhere to fulfil a function beyond that of the debris of production. It is surely significant that the man-made pool at the King’s Stables, where mould fragments were discovered in 1975, is part of the Navan complex (Lynn 1977, 50-2, 56; Cooney and Grogan 1995, 170). Cooney and Grogan (1999, 196) have visualised the King’s Stables as a place of formal deposition for Haughey’s Fort while a similar pool at Loughnashade may have played the same role for nearby Emain Macha. Elsewhere, it is possible that the mould fragments from Old Connaught – in an embanked mound, possibly a burial site – may also suggest deliberate deposition away from the site of production rather than production *in situ*.

There is evidence from southern England to suggest that mould fragments were still of intrinsic evidence after they had played their role in the formation of a weapon. Sword moulds discovered at Springfield Lyons, Essex (Buckley and Hedges 1987) appear to have been carefully and intentionally deposited in the ditch terminals immediately to the north of both western and eastern entrances. Bradley (2007, 209) has recently suggested that such ringworks, which are increasingly being recognised in southern and eastern Britain, played a role in weapon manufacturing. Similar ringworks to Springfield Lyons, such as Navan itself, exist in Ireland in some numbers. The evidence for production within the Navan complex comes from the mould fragments deposited within the ritual pool at the King's Stables as discussed above, which, it is suggested, is likely to be near to the place of manufacture.

4.3.3 The Elusive Smith

Any reconstruction of how smiths operated in prehistoric Ireland is based on what we can deduce from known production sites and an appreciation of bronze working in historical and ethnographic contexts. To this end the Bronze Age smith is an elusive character. The situation regarding his or her position in society must have been, as Waddell (2002, 202) noted, a complex one, steeped in custom, tradition and taboos. Smiths may have held high status, perhaps according to what they made or their level of skill. The existence of sword and predominantly weapon moulds in the apparently high status sites at Rathgall and Dun Aonghasa may indicate, for example, that the production of weapons only took place at such important places under the control of local chiefs. By the same token the existence of moulds and tools – and no weapons – at the ‘midden’ site at Potterne in Wiltshire (Lawson 2000) may indicate that domestic tools were made by a different, perhaps lower caste of smiths, or that they were considered very much as within the domestic domain of the community. It is worth pointing out, however, that the complexity of casting in itself would not appear to be greatly different whether a socketed axe, a chisel, or a sword was being made, so perhaps therefore the actual location of production for any particular artefact is of major symbolic importance. This may be why we have no weapons from the southern

English midden sites. Needham (2007) has recently discussed what he calls the *life assemblage* - the full gamut of metal material in active use in a given space and time – which is not echoed in the archaeological record as this is more weighted towards prestige objects and hoard depositional episodes. It may well be that the life assemblage exists as a concept from birth, that is that the separation of different artefacts, essentially martial or domestic, existed from the very start of their lives. They were made in places specific to their type.

The ethnographic account quoted in the introduction concerned the rituals surrounding the casting of copper ingots in the Congo of the early twentieth century. These involved a master of ceremonies whose task was to make sure that the procedure necessary for successful casting was undertaken correctly. This should remind us of the responsibilities, other than technical competence, that go with being a master metalworker. Things were doubtless no different in prehistoric Europe. Barber (2003, 133) in a discussion of metalworking practices, has pointed out that, ‘no distinction is evident in the ethnographic record between technology and ritual (or ‘magic’)’. Briard (1976, 189) quotes one of the rock carvings at Val Camonica in the Italian Alps showing a smith at work wearing what appears to be a strange feathered headdress. Whatever the practicalities of the casting process, magic and correct procedure had an important role to play in the birth of a sword. An area of investigation for the future is the recognition of symbolism at the actual place of production. In some African societies the various parts of iron smelting furnaces are replete with sexual symbolism connected to fertility (Schmidt 1998, 143-159) and production is highly ritualised. This involves, amongst other acts, the placement of various artefacts or tokens of a symbolic nature with the furnace in order to ensure its fertility.

In addition to status, the role of gender in metalworking has also been recently examined. Sørensen (1997, 49) has questioned the view of metalworking as both exclusively male and solitary, and considers that it is better seen as a group activity. Many sites in northern and western Europe have produced mould and crucible fragments suggesting that this activity took place as part of the normal life of the settlement, in areas that were also used for other purposes (Harding 2000, 238). Mould manufacture, like pottery making, may have been gender specific, though it is

likely to have involved a number of people. The clay, for example, may have come from more than one source for different parts of the mould.

Rowlands (1971) has discussed the variety of different roles and practices smiths undertake or have undertaken and which are documented in the anthropological literature. The vast majority, however skilful or specialised, work within their communities as members of these communities, not as outsiders. Interestingly, he also found that the method by which the smiths obtained the raw material, especially second hand metal, varied enormously. In some societies it was the responsibility of the customer to provide the scrap for recycling, making the collection of the bronze the responsibility of a non-specialist who would play no other part in the production of the required artefact.

There is another reason to view casting as a group activity. In a society where death was common, the various skills and knowledge of procedure could not be allowed to die with individuals. Writing in the first half of the twentieth century, Childe (1940) envisaged bronze smiths travelling the countryside, either alone or in groups, making goods as required by the local market. In his interpretation of the past one lone Irish smith, driven by necessity or enterprise, set up his workshop at Jarlshof in Shetland. This lone smith would have needed a handful of apprentices to make sure the techniques were passed on, and most of the apprentices were destined to die in early adulthood, if not before. It is surely more feasible to suggest that only the acceptance of bronze working as a group activity, where many were competent if not skilled, would have allowed the knowledge of techniques to survive, as they unquestionably did, from generation to generation. Herbert (1984, 47), discussing the ethnographic data for Africa, has pointed out that there are only isolated examples of itinerant smiths. The majority of coppersmiths were an integral part of a settled community, initiated into their craft as a hereditary specialisation.

Budd and Taylor (1995) argued that the role of magic was paramount in the world of the metalworker whose place in society was driven as much by a social as a technological role. They stressed the importance of communal activity of a social or ritual nature being an integral part of the metallurgical process, and downplayed Childe's view of the prehistoric metalworker as a technologist driven by a more

rational concept of experimentation and improvement. The making of swords and other weapons involves far more than just casting. Finishing and polishing and sharpening may be labour intensive but they are also social activities involving many hours around the fire or sitting outside in the sun of an Irish summer being involved in repetitive activity with others. Such group activity in the finishing/polishing of artefacts had been going on for thousands of years, such as the final polishing of Irish axes (Cooney and Mandal 1998).

Another issue concerning the location of production is the importance of a ready supply of fuel, both timber and charcoal, for the casting furnace. The supply of timber has already been mentioned in connection with mining. Aside from fuel, wood was also needed in both quantity and quality for building houses (Pope 2008) and boats (Gifford and Gifford 2004), so sources must have been carefully managed. Such responsibility can perhaps best be seen as being rooted in the tribe or family. Put simply, it would not have been possible to cast successfully without good supplies of fuel. While this was low level production when compared with later centuries, it is worth pointing out the massive quantities of timber required for industrial production in historical times before the widespread use of coal. Whole forests in Highland Scotland were destroyed to feed the hungry seventeenth and eighteenth century iron furnaces (Millman 1975, 87).

4.4 CONCLUSIONS

The number of swords found in Ireland show that the country was, notably in the Late Bronze Age, a user of high quality weaponry. Where did the raw material to make these weapons come from? There are big gaps in our knowledge about mining in this period, as the archaeological evidence relates almost entirely to the Early Bronze Age. This chapter has explored the archaeological evidence for the mining of copper and tin in Ireland. We have seen that, although there are known copper deposits throughout much of Ireland, the evidence for prehistoric exploitation is restricted to the ore bearing veins of the south west during the Early Bronze Age. These appear to have been exploited on a relatively small scale, and the work of mining is most likely

to have been seasonal and family based. Copper for the swords of the Late Bronze Age would have come either from the major deposits of central Europe, or from recycled bronze artefacts. As far as tin is concerned, it is possible that this was panned in the Wicklow Mountains where there are limited deposits, though it is more likely that the tin mines across the Irish Sea in Cornwall and Devon provided all that was needed.

There is, however, evidence to show that swords were being made in Ireland. Fragments of clay moulds for making swords have been found at sites which are clearly of high status, such as The King's Stables, Co. Armagh, Rathgall in Co. Wicklow or Dun Aonghasa in Co. Galway. This suggests that sword manufacture was under the patronage or control of a warrior aristocracy who had access to metal supplies. In northern Europe a large number of Danish sites have produced mould and crucible fragments together with bronze waste. Levy (1991) has suggested that some Urnfield settlements specialised in bronze manufacture which was then distributed to 'user' sites. Fortified sites in this model played a role as distribution and recycling centres, and it is possible that high status Irish forts and other sites such as crannogs played a similar role. Given the evidence for production at these sites it is possible that they fulfilled a dual role as both production and distribution sites for prestige metalwork. This will be discussed further in the chapter on *'The Life of the Sword.'*

It is suggested therefore that the whole process of sword manufacture, from the mining of the ore to the breaking of the clay mould, should be seen as an activity involving a large number of players, some highly skilled, some learning, and others competent at ancillary tasks. Smiths could not have operated without the assistance of others involved in tasks as complex as mould manufacture or as mundane as wood collection to manipulation of the bellows. The smith would have had overall control of an operation that could have, at least temporarily, involved many people with individual and perhaps well-defined tasks at various levels of complexity. Experimental work has improved our knowledge of casting, and there is evidence suggesting careful choice in the materials used for moulds.

We do not know, therefore, how the making of a sword from copper and tin to the final weapon was organised but, from modern ethnographic parallels, it is likely that this was an activity bound in ritual with a notable community involvement. Such

ethnographic parallels can be helpful in suggesting a model for the role of the master smith, but we should be careful in not allowing preconceptions regarding status or gender to colour our interpretation of what evidence there is. I would suggest, however, that we should consider any model to be based on shared skills and small scale production in multiple locations. The birth of a sword, the prized possession of a warrior, needed many to assist in the process.

5. THE LIFE OF THE SWORD

5.1 INTRODUCTION

The sight of Late Bronze Age warriors fully equipped for conflict, holding their swords and shields aloft, the bronze glistening in the sunlight, must have been terrifying to an enemy. It has to be realised that a sword, like any deadly weapon, is designed, ultimately, to put an opponent out of action by slaughter. It is a weapon of death, and death at close quarters. Yet a sword is more than just a technically efficient killing tool. In her study of edge damage on Irish swords Bridgford (1997a, 95) put it succinctly: *'a sword may simultaneously be, or have the potential to be, a beautiful object, an efficient killing tool, a symbol of power and wealth, an implied or actual threat, a sacrifice, a gift, a reward, a pledge of loyalty and/or an embodiment of the idea of conflict'*. It is an apt question to ask of each Irish sword – what was it used for over its life? Any individual sword would have fulfilled all or some of the roles outlined above. Some may have been used only to impress and were then placed in the ground or a wet place, perhaps when their owner died or was killed. Others may have been passed down over generations and used regularly. Some may have been used to kill; others, equally worn and handled, may have seen only practice combat.

Each particular weapon would gain its own history, its own account of manufacture, use and deposition – of its birth, its life and its death. Each carries the individual marks of the parts it played within the lives and the deaths of people and communities in a distant Ireland of the Late Bronze Age where lives were always uncertain and often short. Each would have been recognised by its maker and the owner, or owners, who may have carried it around with them every waking hour, and guarded it jealously during their sleeping hours.

This chapter is divided into two sections. Firstly, I will look at the beginning of the life of a sword. By this is meant what happened to the sword after it left its maker as a newly cast blade and tang and before it found its owner – or at least its first owner - as a finished weapon. Secondly, the archaeological evidence for the actual use of the

sword as a weapon will be examined. This will include the results of innovative experimental work carried out by various scholars throughout Europe over the last few decades on how the sword may have been used, what style of combat was likely, and what the damage visible on the swords might indicate in terms of usage. Throughout the chapter the evidence for the sword as an instrument of prestige by virtue of its very existence will be analysed. A word of warning though; the different roles given here to the sword cross, or more accurately criss-cross, the categories of functionality, ceremony, 'ritual', and symbolism. Brück (1999) has pointed out the dichotomy between how prehistoric societies are likely to have viewed their behaviour and how we perceive and compartmentalise it from a post enlightenment viewpoint. The boundaries between the different roles which we can perceive rationally may not have existed at all in the Bronze Age mindset.

I have also used 'he' throughout when referring to warriors, for my own convenience. We have nothing in Ireland which ties the use of bronze weaponry in the Late Bronze Age specifically to either gender, as we have no burial associations with weapons. In Europe there is at least some help with gender identification; for example, rock art panels from this period in Scandinavia regularly show sexually aroused male warriors (Osgood et al. 2000, figure 2.14). The Urnfield graves of Late Bronze Age Central and Northern Europe have as yet produced no definitive female warriors, though the general transition from inhumation to cremation in the later second millennium BC has not helped with identification (Harding 2000, 99-100).

5.2 STARTING LIFE

In the previous chapter the places where evidence exists for swords being made in Ireland were identified and discussed. What follows next is a consideration of what happened to these same weapons after the clay mould had been taken apart and the contents revealed, but before they reached the places where they were actually used. This was in a real sense the start of their lives.

5.2.1 The Role of Islands

We have seen in the previous chapter that the evidence from sword mould distribution suggests that swords in Ireland were being made at places that today appear remote or liminal. Such places could be islands, coastal locations or places within easy reach of the shoreline. Even where swords and other bronzes have been made inland, there seems to be a preference for the use of crannogs or what may have been islands within a wetter hinterland. The place where the sword was made seems therefore to have been important. Islands and coastal sites play another role as well, in the dissemination of the finished weapons to their owners. I repeat here from the previous chapter the reasons for the importance of coastal islands, reasons which may be seen as equally appropriate for their role as a conduit for the successful transfer of the sword to its owner:

- 1 Good communication routes by water for raw products
- 2 Good communication routes by water for finished products
- 3 Potential of close control by an elite
- 4 Liminal places difficult to reach
- 5 Liminal places with a cosmological element
- 6 Traditional foci of communication and trade
- 7 Belief in islands as appropriate places to cast bronzes
- 8 Belief in islands as auspicious places to cast bronzes

The role of islands within the wider community of the second millennium BC with an intimate knowledge of the tides and currents of open and coastal waters has been discussed by Needham (2009, 22-25) in relation to the cross Channel connections between southern England and northern France. Needham's concept of a *maritory* – a seafaring community with common values – views islands and promontories as a land-bound extension of a sea centred community rather than as a geographical boundary for a land centred society. This is important when we consider where swords went after they were made, as their transportation would have taken place within the rules and *mores* of a wider maritime community.

5.2.2 Sea Trade

One noteworthy example of a sword type which may have been transported over long sea crossings is the Ballintober type – Eogan’s Class 1 – which has a distribution split largely between the North of Ireland and the Thames Valley, although there are a number from south west England and south Wales, suggesting that the connection with the North of Ireland lay through the Bristol Channel (Hodges 1956; Colquhoun and Burgess 1988, 21). This must indicate close links at the beginning of the Late Bronze Age, and perhaps some centralisation of production either in Ulster or southern England. These swords were clearly influenced by continental imports such as the Rosnoën type, of which there are a scattering from Britain but none from Ireland (Colquhoun and Burgess 1988, 13-16).

Unlike stone axes, where petrological analysis can provide a provenance for the starting point of their life journey, there is no way of discovering where individual bronzes were cast. While we may have similar swords from the valleys of the Thames and the Bann, we do not know whether they were made in one, both or neither location. As it is impossible to know where any individual sword was made, it is impossible to know whether it has been traded or carried over any distance. The similarities of design and distribution mentioned above, however, clearly point strongly towards this being the case in practice.

Long distance movement of quantities of Ballintober type swords mean that cargoes of finished bronzes would have been carried across the Irish Sea, and, although we have no such cargoes from Ireland, two hoards found by divers near ports on the coast of southern England have been interpreted as cargoes lost in transit. The Dover ‘Langdon Bay’ hoard (Colquhoun and Burgess 1988, pls 137 and 138) consisted of fragments of over 40 individual swords, while a hoard found off the Devon coast at Salcombe (Colquhoun and Burgess, pl 137) comprised three rod tanged swords. Since the latter was published further underwater excavations in 2005 produced more sword fragments from the sea bed (Parham et al. 2006) and, in 2009, in the same area, divers recovered a Ewart Park type sword amongst a large quantity of copper and tin ingots (Yates 2010). The distribution pattern of associated copper and tin ingots on the sea bed on the most recent find left the excavators in no doubt that this cargo had been

lost as the result of a single catastrophic incident. In total three separate wreck sites have been identified.

While there was no sign of any boat at Dover or Salcombe, prehistoric craft capable of carrying cargoes of bronzes across open seas have been found in Britain, though not as yet in Ireland. By the Middle Bronze Age sophisticated sewn plank vessels such as that discovered in what was in prehistoric times the estuary of the River Dour, beneath modern Dover, would have been capable of making the channel crossing in as little as five hours, given favourable conditions (Van de Noort 2009, 166). That such journeys were regularly made should not surprise us; after all, early Neolithic farmers must have brought cereal seeds and sheep by sea two millennia previously. The concept of close connections between prehistoric communities across the English Channel was recognised long ago as there are so many similarities in bronze metalwork throughout the Bronze Age (Butler 1963; Burgess 1968). More recent excavation work has shown up consistent similarities in ceramics, house design and land allotment (Needham 2009, 20).

The idea of an Irish Sea province encompassing the western seaboard of Britain and the east of Ireland is a similar concept and clear links across the water can be recognised from the Neolithic onwards. A common seafaring community engaged in trade and encompassing the east coast of Ireland, and the west coast of Scotland, England and Wales, would fit Needham's miratory model mentioned above. In an earlier article, Needham (2008, 313) suggested and listed the possible elemental motives for exchange beyond the kin group in prehistory. In addition to the more prosaic and functional reasons, he points out the cosmological view, the idea that travel to places outside the immediate world was considered of value in itself. Helms (1998), in a study of the travels of Ulysses, has suggested that such journeys were a way not only of reaching out into the world beyond, but also of allowing high ranking members of society to prove their mettle by bringing back something of value from the world beyond. Being involved in bringing a cargo of high value weaponry safely across hostile and unpredictable waters may have been a worthwhile achievement for any aspiring young leader.

Close links between Britain and Ireland can be recognised throughout the Late Bronze Age. Eogan's Class 4 swords bear such close comparison with Ewart Park swords that the standardisation of sword types throughout Britain and Ireland during the latter part of the Late Bronze Age is quite astonishing. These Class 4 type swords constitute the vast majority of weapons available for study. The basic hilt features, the blade shape and the cross section vary mainly in detail or length. Irish examples tend to be shorter, but this appears to be a regional variation on features common throughout the British Isles. The implication here is of a commonality of basic design that extends throughout Britain and Ireland, and, judging by the finds of Ewart Park/Class 4 type swords in France and the Low Countries, onto the Atlantic and North Sea coasts of the Continent (Burgess 1968).

Of relevance here is a study of South Welsh socketed axes by Stuart Needham (1981), where he showed that the distribution of the moulds for these axes was largely in southern England. These axes have a distinctive three ribbed pattern on the face. The distribution of the finished product however is mainly north of the Bristol Channel in South Wales. These artefacts, like earlier stone axes, appeared to have had a value away from their area of production, and to have been traded or at least transported across the Bristol Channel. It is therefore possible to show that the finished axes were intended for use in an area away from the zone of production. The implication is that this may have been a common feature of the Late Bronze Age metalworking community, that bronzes such as swords, may have been made in one place with the prime intention of use well away from the area of production, perhaps with the sea/water crossing being of importance as an event which helped towards the successful future of the sword.

The few finds of prehistoric cargoes that we have from western Europe are open to alternative interpretations. In 1923 a large hoard of bronzes was found in Huelva on the Atlantic coast of southern Spain (Almagro 1940) This included many swords with features similar to carp's tongue swords from the French Atlantic seaboard, and has been considered as shipwrecked cargo. The location of the find, in a focal point within a river estuary, has led to the suggestion that the deposition was a deliberate act and thus that the motive for it being there was votive or ritual rather than accidental (Ruiz-Gálvez Priego 1995; Brandherm 2007).

I therefore suggest that a sword made at a distant liminal or even magical location and then brought over long distances, preferably by sea, would have had an attraction of its own by virtue of its origin. Before it was used as a weapon it would have had a story attached. The pulling power of the exotic resonates throughout prehistory. The best known example of this are the well made and finished stone axes of the Neolithic made at places such as the Langdale Pikes in the English Lake District or Tievebullagh in Ulster and then transported over long distances throughout the British Isles (Bradley 2007, 133). Jade axes were even more treasured, and recent work has shown that those from western Europe originate from high up in the Alps of northern Italy (Pétrequin et al. 2006) Their very desirability seems to have been measured by how far they had come and how inaccessible their provenance was. It seems feasible to suggest that an individual sword made at a remote and distant island from across stormy waters would have had a similar cachet.

5.2.3 The Final Touches

Bronze sword blanks had to be finished to a state where they could be useful as weapons, presumably with the help of craftsmen versed in other skills. Swords fresh from the mould needed to be ground and polished, and the edges sharpened. This can be imagined as an activity needing direction rather than a great level of skill, and may have involved children or apprentices using abrasive stones. The attachment of hilt plates would have involved more skill. These, most likely made of antler, bone, or hardwood, were riveted to either side of the hilt, and may have been inlaid with other materials to produce patterns designed to impress. Few organic hilts have survived. Two bog finds come from Ireland: the sword in Figure 1 from Muckno, Co. Monaghan with its bone grip, was illustrated by Evans (1881, figs 358 and 359; Eogan 1965, no.29). The other sword is shown in Figure 2 and is from Mullylagan, Co. Armagh (Evans 1881, fig.361; Eogan 1965, no.91; Waddell 2000, 237 fig 100). The hilt grip on this sword is bulky with rivets attaching it to the sword longer than any others; because of this it seems more likely that this was a nineteenth century addition to the weapon (Figure 1).

Given the proportion of swords from bogs – around 25% of the total – it seems strange that we have so few organic hilts from find circumstances which would have favoured their survival. It is possible that the hilt plates, rivets and pommels were removed, perhaps to be attached to a new or different weapon. In this case, they may have been considered as being as equally valuable, or even more valuable than the swords themselves, either because of the material from which they were made or their associations with individuals or groups of individuals. Conversely, it may have been thought that they did not have the same magical significance that the bronze of the sword possessed when offered to the earth. In either case they were treated differently from the metallic sword blade.



Figure 1: Sword Hilt from Muckno, Co. Monaghan



Figure 2: Sword hilt from Mullylagan, Co. Armagh

From a later period, but of note here as it may indicate the survival of an ancient tradition, is the recently discovered seventh century AD Anglo Saxon hoard from Staffordshire. This was composed not of swords but sword fittings (Leahy 2009). These had been methodically removed from iron and steel swords and were probably war booty, captured perhaps from Northumbrian armies, and then buried near Tamworth at the heart of the Mercian kingdom. Accounts in Anglo Saxon literature such as *Beowulf* (Heaney 1999) stress the importance of collecting and burying retrieved booty as a signal of victory. Some of the fragments are inscribed, indicating that the attached sword had been personalised before it had been taken apart by the victors.

A number of horn or bone hilts are also known from Middle Bronze Age Irish dirks and rapiers, such as Shower, Co. Tipperary (Burgess and Gerloff 1981 no 116) or Glack, Co. Donegal (Burgess and Gerloff 1981 no.204). The preservation of organic material attached to bronze is obviously dependant on the soil conditions within which the weapon was buried. Both the Irish examples have come from bogs in circumstances which would appear to have favoured the survival of organic plates. No wooden hilt plates are known for any Irish swords or apparently, rapiers. This may be because of the perceived value of the hilt plates as suggested above. In this case wood may have been considered as a more utilitarian material unsuitable for a hilt designed to display the wealth or status of the owner. Another reason may be that, in practice, most woods, especially softwoods, would be difficult to fashion into the curved shape of swords shoulders because this would involve working across the grain, creating a danger of splitting. Some hardwoods would be more suitable; apple or box, for example, can more easily be carved into delicate shapes, though not as easily as bone or horn.

No swords with cast bronze hilts have been found in Ireland, although there are some rapiers, for example from Beleek in County Fermanagh (Burgess and Gerloff 1981 no. 706), so this clearly indicates that the technique of hollow casting was used or at least known about in Ireland. These hilts were not solid but cast hollow, apparently as an addition rather than an integral part of the original casting. The technique can be clearly seen where the tang is visible, such as a sword from Yorkshire illustrated in Colquhoun and Burgess (1988, no.593). There are more swords with cast hilts in

Britain, from early examples such as the Ambleside hoard (Colquhoun and Burgess 1988, nos. 17 -19) to later northern British swords with heavy Ewart Park type blades (Colquhoun and Burgess nos. 593-595; 599-600). While continental *Vollgriffsschwerter* (such as examples which can be seen in Harding 2000, 276 fig. 8.2) normally have ornate, decorated hilts, later British examples are characterised by plain hilts and mushroom like pommels (Colquhoun and Burgess 1988, nos. 593 to 602). The presence of a splayed terminal in itself suggests the attachment of a pommel. One Scottish sword with an organic hilt from Aird on the Isle of Lewis clearly has the top of the wooden hilt plates shaped to take a pommel (Colquhoun and Burgess 1988, no.587). It seems therefore highly likely that organic (bone or wood) pommels of a similar style would have been fitted to all swords in Britain and Ireland.

All hilt plates were attached to the metal hilts by bronze rivets, circular in cross section. These vary in size, generally decreasing in diameter over time from as much as 4mm on Eogan Class 1 swords to around 2 mm on Eogan Class 5 and 6 swords. The latter are normally described as pin rivets (Figure 3) and sometimes have decorative dished heads. Most rivets are slightly dished where they would have been gently hammered to hold the hilt plates in position. The size of rivets is obviously related to the size of the holes in the hilt. Smaller holes would generally improve the inherent strength of the hilt, so it is feasible to see this development as a technological advance.



Figure 3: Pin rivets on a sword from near Athlone, Co. Westmeath

It is possible to visualise a finished Irish sword of the Late Bronze Age, the recently acquired proud possession of a veteran, or perhaps aspiring, warrior. The new weapon would have had a sharp, polished blade, a carved organic grip riveted to the cast hilt, and a mushroom shaped pommel. It is quite possible that the hilt may have been inlaid, coloured or otherwise decorated to show the status or taste of the owner. The rivets would have been made into a decorative feature, perhaps again highly polished or just kept bright by constant handling.

5.3 THE SWORD AS WEAPON

In this section the archaeological and experimental evidence for the use of swords as weapons, both in Ireland and elsewhere, will be analysed. There are two main areas of research to be considered here. The first is the evidence we have for the status and nature of warfare in Irish Late Bronze Age society; that is, what people fought about and over. The second is how the sword was actually used as a weapon. The latter needs to be thought about in two ways – how the sword was actually held and managed, and how a warrior would use it with the other weaponry available in the prehistoric arsenal.

5.3.1 The Nature of Warfare and Conflict in Late Bronze Age Ireland

What should we understand by the terms ‘warfare’ and ‘conflict’ when applied to the Late Bronze Age? I use the word warfare to describe a group action with some socially cohesive direction; what Ferguson (1984, 5) defined as ‘organised, purposeful group action, involving the actual or potential application of lethal force’. Conflict is best seen as a less fluid concept and, while still involving violence or the threat of violence, is not organised. Put into this context, warfare is organised conflict, normally on a large scale. I will argue that weaponry in the Late Bronze Age was used more for conflict than warfare.

The very fact that we have a number of substantial artefacts specifically designed as weapons indicates that conflict was present and the damage to these weapons suggest they played a role in conflict whether implied or real. Keeley (1996, 65) in a study of

war before civilisation has suggested that the most common form of conflict in what he terms 'primitive warfare' (a loaded term in itself) were raids or ambushes. Such a raid, and its tragic repercussions, form the basis of the Tain (Kinsella 1969) the Irish epic tale involving the search for and capture of a famous Bull from Ulster. This was not written down until the twelfth century AD, though the lack of any Christian or classical references suggests it belongs to what was then a distant pre-Christian past, whether Iron Age or even possibly Late Bronze Age.

Both the Irish tales and classical Greek sources make much of the set piece duel between chosen champions as a normal part of in place of inter-tribal relationships and conflict. There are also other aspects of what we might call directed violence – revenge killings, hostage killings and so forth. I suggest, therefore, that when we consider swords being used we should imagine either individual combat, with pre defined rules, or spontaneous use as part of a surprise attack (or defence), or small scale battles (a lot of shouting and build up, but very little action) or brutal execution. What we should not be thinking about are large battles with massed ranks of swordsmen tasked as part of a wider scheme with a purpose. We should not, therefore, be thinking of battlefields but of scenes of conflict. This is more like Newcastle City Centre on a Friday night with numerous fights born of petty vendettas and jealousies than the Battle of the Somme. Osgood and Monks (2000, 8) summarise it usefully: *'In many instances warfare could be argued to be a part of everyday life, a form of social interaction just like trade and exchange, marriage and feasting.'*

While Bronze Age specialists have had no issues with the idea of organised warfare in that period, archaeologists more used to the study of the Early Iron Age of Britain and Ireland have retreated somewhat in recent years from the idea of conflict as a driving force in society. In its place has been put forward the concept of a largely peaceful, egalitarian, agricultural population (Hill 1995). This is tied in with the view of hill forts as being more about prestige and symbolism than defence. However, hill forts as we generally view them have their origins clearly in the Late Bronze Age, clearly seen in Ireland at such sites as Haughey's Fort (Waddell 2000, 215-218). Their development has been discussed elsewhere; here, it is necessary to point out that the concept of a 'bloodless' Early Iron Age has been challenged (James 2007).

5.3.2 Using the Bronze Age Sword

Middle Bronze Age rapiers generally have a narrow, tapered and pointed blade well suited to thrusting, rather like an elongated dagger. Thus they are clearly intended to be stabbing weapons, designed to incapacitate an opponent primarily by the use of the point. The grip or handle is riveted to the blade itself rather than a tang, leaving the grip more susceptible to breakage if the rapier is used as a slashing weapon, as a slashing or cutting action would have the effect of putting stress on the handle. The distribution of the weight in both rapiers and daggers is biased towards the hilt. Burgess and Gerloff (1981, 113) believed that the demise of daggers and rapiers was one of the casualties of the changing fashions and technical innovations of the Penard Period at the start of the Late Bronze Age in Britain.

By contrast with rapiers, Late Bronze Age swords from the Ballintober type (Eogan Class 1) onwards have wider blades with a hilt integral to the blade casting. These Irish Ballintober (Eogan Class 1) swords are leaf shaped, with the widest part of the blade just over a third of the way between the point and the hilt. These blades are potentially dual purpose, in that they can be used for thrusting and cutting or slashing. However, in my experience, as slashing weapons they feel remarkably clumsy when compared with the more common and later swords of Eogan's Class 4. These latter weapons have the balance (though not necessarily the weight) concentrated at the widest point of the blade, allowing the swordsman to make a cleanly balanced sweep.

There are, then, two main actions involved in using a sword as an offensive weapon. The first is the thrust, using the point of the weapon to puncture the opponent's flesh or armour. The second is the slash, using the edge of the weapon to slice through the opponent's body. The length, shape and weighting of the blade is therefore of fundamental importance in providing the swordsman with a weapon of the required characteristics. Unlike some more recent types of steel swords, prehistoric weapons were two edged, allowing the swordsman to make use of either side of the blade. Most swords however are not exactly symmetrical, and the unequal wear visible on parts of the edges of some swords suggests personal preference in the use of any weapon.

Molloy's experimental work has suggested that the main value of the slashing action of the swordsman is when he draws back the weapon towards him through the flesh of his victim. As he does so the curve of the leaf shaped blade cuts deeper causing maximum laceration (Molloy 2007, 107). The pommel, and any attachment loop, would stop his hand from losing the grip of the sword. The length of the sword has a bearing on how well this could be done, and how adroitly the sword could be handled. The longer the sword, the greater its reach and the arc of the cut; the downside of length is that the weapon becomes more unwieldy to handle.

Some commentators have stressed that the move from rapier to sword and subsequent changes in the size, shape and weight distribution of the blade throughout the Late Bronze Age should not be considered as a straightforward typological progression towards improvement in design and function. To Clements (1997, 176) '*each sword and manner of use was particular to the conditions it was devised for and to the user's own preferences*'. Molloy (2007, 104) sees sword development in terms of local responses to introduced weapons, and does not view the introduction of the leaf shaped sword as a revolutionary act *per se*. This contrasts dramatically with the view of archaeologists from previous generations, who viewed the sword as dramatic evidence for the introduction of assertive new peoples or radical technological change. R. Macalister, for example, wrote in the first part of the twentieth century of the 'Sword People' with their 'invincible energy' invading Ireland (Macalister 1928, 73); he used the bronze sword to define the aggression and *Leitmotif* of a complete tranche of Irish prehistory.

Lastly, I have assumed throughout that swords were primarily weapons and that the majority were used as such, if only for short periods. The converse view is that they were intended primarily to indicate status and prestige. Bridgford's examination of the edge damage clearly visible on a sizeable proportion of Irish swords concluded '*It is clear that almost all the swords were of a suitable design and adequately manufactured to be useful as weapons and, from the damage exhibited, that a large proportion were physically used, most probably in combat.*' (Bridgford 1997, 113).

5.3.3 Getting a grip

How were the swords held? One feature that immediately differentiates these Late Bronze Age weapons from swords of the Iron Age and later is the lack of a wrist guard protecting the user's hand from slipping down onto the blade. This seems odd as we are so used to seeing this feature on modern weapons. It does however carry on from what we see on Middle Bronze Age rapiers in Ireland and Europe with their sloping shoulders. The idea of a wrist guard was certainly known elsewhere in the Bronze Age. Mycenaean Bronze Age swords show a development from Types A to C, all of which have upward sloping shoulders providing protection to the hand, to the sloping shoulders of later types apparently influenced by Naue II swords (Wardle 1997, Figure 22: Molloy 2008). Naue II is a widespread type which was introduced to the Aegean from Europe in the closing centuries of the second millennium BC (Osgood and Monks 2000, 125) and appears to have almost superseded local development of weapon types.

The reason for the narrow, rounded shoulders is tied in with the method of holding the sword. The most comfortable way, in my experience, is by gripping the hilt with three fingers, and placing the forefinger and thumb on, or across, the ricasso notches at the top of the blade. This grip, with the thumb across the ricasso, is illustrated on a replica sword in my possession (Figure 4). This practice steadies the blade, much as a traditional method when using a wood saw is to place the forefinger over the blade, in order to steady the cut. It also allows the swordsman a long, flexible reach, as it takes account of the flexibility of the wrist. Conversely, having a wrist guard in place puts the grip more at right angles to the line of the blade and lessens the reach and stabbing capabilities of the weapon. Kristiansen (2002) has suggested a slightly different grip, with the thumb and forefinger meeting over the shoulders rather than the ricasso. I find this grip uncomfortable and inflexible, largely because of the presence of the pommel which restricts the movement of my wrist. It seems reasonable to assume that the hands of men in the Bronze Age, used to heavy physical work, would be no smaller than my own and probably were larger. I would count my hand size as average.



Figure 4: Suggested sword grip

Kristiansen (2002) also found that when he attached a leather strap to the hilt, this provided a more secure grip and he was able to create a greater force in slashing movements. These loops would also keep the sword securely in the user's possession, rather like that on a 'traditional' police truncheon used in Britain until the 1990s. My own experience in the Police service is that such loops are valuable features either to stop an assailant knocking it out of the hand or to stop it being simply dropped during movement. The type of grip used is illustrated on a truncheon (Figure 5) and a replica sword (Figure 6). The pommel on the Bronze Age sword would have served to keep this loop in place; what started as a small practical feature on daggers may thus have grown into a decorative (and unnecessarily large) feature on swords.



Figure 5: Police truncheon grip with attached leather loop



Figure 6: Sword grip with attachment loop and thumb on ricasso

Irish swords vary greatly in length, from under 450 mm to over 700mm. A significant number are noticeably shorter than those from Britain. A longer sword is not always an advantage over a shorter one. The short sword or *gladius* was the sword of choice for Roman soldiers and gladiators for much of the Empire. What determines the most

effective and useful length for a sword? Coulston (2007, 42) has argued that the *gladius* was more compact and less reliant on momentum than a longer version. A longer sword, the *Spatha*, became more popular during the later empire with cavalry and charioteers.

5.3.4 The Complete Fighting Man.

Swords were not the only weapons available to Late Bronze Age warriors. Images carved on the stone Stelae of southern Europe consistently show the warrior's equipment to comprise of sword, spearhead and shield (Harding 2000, 286, fig. 8.4). In addition many also show bows and arrows, armour, what appear to be chariots, and mirrors. We have swords, spearheads, and wooden and leather shields from Ireland (Waddell 2000, 241, fig.103). Such organic shields may have had an offensive as well as a defensive role. Roman soldiers were trained to thrust the shield forward horizontally at face level in order to catch the opponent off balance. This would then allow the assailant to land the killing blow, provided he could reach the victim. The downside is that he would be undefended himself. The length of the sword compared to the size of the shield would therefore be of some importance. Whether bronze shields, made from sheet bronze, were used in conflict situations has been discussed most recently by Osgood (1998, 8-11). Coles (1962, 185) believed they were designed primarily as ritual or votive objects, an opinion echoed by Bridgford (1997, 113). It seems unlikely that the sheet bronze used would have survived many blows from a bronze sword or spearhead.

Modern police public order training is of interest here as the shields used are designed primarily to deflect blows and missiles and are thus defensive. I have undertaken such training and it is probably closer to the reality of Bronze Age warfare than modern military training which is concerned primarily with the use of and threat from firearms. Training and tactics are subject to national guidance (ACPO 2010). Police shields fall roughly in to three types. The first two are rectangular shields used mainly in conjunction with other shields in much the same way as the Roman Army would form and link shields for defence. The second, and of relevance here, is a smaller, lighter, round plastic shield, similar in size to those made of wooden and leather of

Late Bronze Age date. These are used by officers who need to be more mobile, mainly supervisors and ‘snatch’ teams designed to move forward of the other officers, arrest troublemakers and then return to safety behind the large shields. In order for the shield to be used as a defence the officer has to be aware of where the danger is and move quickly to deflect it. The trade off is that of weight and manoeuvrability against more complete protection. Use of a sword in connection with a small shield would be much the same, in that the protection offered is minimal and so the shield would need to be used with great skill *in conjunction with the sword* to be effective.

Spears were a well attested part of the armoury of the Late Bronze Age warrior. There are many hundreds of spearheads from Late Bronze Age Ireland. They are also known from throughout western Europe where their use in warfare has been well documented. Spearheads have been found embedded in human skeletons. At Over Vindinge in Denmark, a man in his 50s was found with a bronze spearhead embedded in his pubis. New bone had grown around the spearhead, so this was an injury he had survived (Bennike 1985; Osgood 2000, 21). At West Littleton Down, Tormarton, Gloucestershire, two skeletons were found and excavated in 1968 in advance of a gas pipeline. One had the fragments of two spearheads embedded in the spinal cord and pelvis, while the other had a hole in the pelvis apparently caused by a spearhead. These two young men, aged around nineteen, had been placed without apparent ceremony in a ditch or pit; two further bodies were found in a subsequent excavation in 1999 (Knight, Brown and Grinsell 1972; Osgood 2000, 21- 22). An earlier find from Dorchester on Thames is that of a human skeleton where the pelvis had been pierced by a triangular bladed spearhead which had broken off *in situ*. Such was the force of the blow that tip had bent (Osgood 1998, 21). It is quite possible that spearheads were intended to break off within the body of the victim, and likely therefore that the wooden spear shafts were designed to snap following impact.

Fighting with a sword *and* spearhead would appear to be difficult, or at the least impractical. Spears can be thrown or used at close quarters, and would have been more expendable than swords, so it is most likely they too were used with a shield, while perhaps the sword stayed sheathed until closer combat became necessary. Later Irish sources called the warrior the *gaisced*, a compound of the Irish word for spear *gae* and shield *sciath*, suggesting that, by the end of the first millennium AD at any

rate, spear and shield was the recognised basic outfit of the fighting man (Mallory and McNeill 1995, 156).

Up until now the implication has been that the warrior fought on foot, although chariots have been mentioned in connection with their appearance on the stelae of southern Europe. Did Late Bronze Age warriors use horses? Evidence from Ireland regarding the use of two wheeled carts or chariots in conflict is sadly lacking (Waddell 2000, 275). Neither is there any evidence to connect the use of swords with horse riding. It is likely that the origins of combat warfare on horseback go back to the ninth century BC in eastern Anatolia and northern Iran and that the riding of horses did not become a significant feature of warfare in mainland Europe until, at the earliest, the eighth century BC (Drews 2004, 147). Such a date would put us right at the end of the Late Bronze Age in Ireland. The earliest definitive evidence for the use of horses to pull transport belongs to the 'harness hoards' with identifiable horse bits which are an Iron Age feature (Cooney and Grogan 1999, 196).

Our twenty first century romantic view of real and fictional warriors of the past invariably places them on horseback. There are three advantages to warriors on horseback; firstly they are very mobile, secondly they are impressive, and thirdly galloping horses are frightening. From my own experience, having taken part in riot training with horses, the power of a horse charge is impressive. I have moved out of the way (very quickly) to allow horses through. Yet the power of a horse charge is quickly spent. Once through they have nowhere to go. A failed charge is wasted energy. Fighting from a horse has the advantage of momentum and little else. An injured horse and dismounted rider is an easy target. We should not consider that warriors on horseback are superior to those on foot. They just look better.

5.3.5 Comfort and Style

It is likely that a warrior wore his sword throughout the day and night as a symbol of prestige and to stop it being taken from him. It would therefore have to be carried in a reasonably comfortable manner yet still be easily accessible and, perhaps most importantly, visible. Irish bronze chapes, which would have been attached to the base of scabbards, were catalogued by George Eogan (1965) in the Sword Catalogue.

These scabbards have not survived in Ireland as they would have been made of leather or even wood. They would most likely have been attached to a waist belt or worn suspended from a loop around the shoulders. Wooden scabbards of Middle Bronze Age date are known from Danish barrow burials (Figure 7).



Figure 7: Middle Bronze Age wooden sword scabbard from a barrow at Støre Køngehoj, Jutland, Denmark (National Museum of Denmark)

5.3.6 Just being a Bronze Age swordsman

Putting flesh onto the bare bones of our Late Bronze Age Irish sword carrier is tricky indeed. Was he part of a warrior aristocracy, or perhaps a member of an entourage of adolescent ‘hangers on’, or possibly a hard working farmer destined to take up arms only at the times of year when agriculture made fewer demands? Garcia (2009) has suggested that access to swords in Late Bronze Age Iberia was restricted to a select few and that war as an activity was ‘frequent and highly valued’. There are perhaps four times as many swords from Ireland than Spain and Portugal; these have been recently catalogued by Brandherm (2007). Does this mean there were more warriors in Ireland than Spain or Portugal, or that swords were carried by a different group within society, perhaps of lower status? Or is the distribution and the numbers known to us merely a reflection of the circumstances of recovery of these weapons thousands of years after they finished their lives?

Excavations at Flag Fen in Cambridgeshire over three decades have produced numerous bronzes, including swords, from the periphery of what seems to be an unexceptional Late Bronze Age settlement. Asked by a reporter in the early days about the value of a bronze sword, Pryor equated it to an anti-aircraft missile. Because of the quantity of bronzes he has unearthed within a limited area, he now reckons

'most tribal warriors could have possessed a bronze sword and spear' (Pryor 2003, 287). This could put our warrior as the prehistoric equivalent of the Kalashnikov toting gunman of contemporary central Asia or Africa. At the end of 2009 the price of a Chinese made Kalashnikov in Afghanistan was as little as \$150, perhaps three months salary for an Afghan (Hodges 2009). The price goes up and down depending on demand and availability; perhaps something similar was happening in Late Bronze Age Ireland with the bronze sword as the Kalashnikov of its day.

5.4 CONCLUSIONS

A sword pulled out of the mould is little more than a rough, ragged blank, ready to be polished and sharpened, ready for the hilt plates to be added, ready for the whole to be personalised and therefore belong to an individual. Such a journey to reach that person may have involved sea or land crossings. This journey may in itself become an auspicious part of the life of the sword and involved a wider community of seafarers, based on coastal areas and islands. It could equally have encompassed a journey made by a member of an elite anxious to prove his worth. Whatever the history of any particular weapon, it is likely that the journey it made was of importance to its story.

The possession of a bronze sword must have acted as a visible and recognised symbol of status in Late Bronze Age Ireland. That status would have been obvious wherever the swordsman travelled, as the sword, or at least the hilt or the scabbard, would be on constant display. Its owner would be practised in its use, yet, to avoid damage, would use it sparingly. It may also have indicated what tribe or family the owner belonged to. Together with his sword its owner would also have a spear with spearhead and a round shield made of wood or leather. Together these formed the accoutrements of a warrior, though whether this was a full or part time occupation is impossible to tell. We have no evidence that swordsmen fought on horseback in the Late Bronze Age of Ireland.

To the modern eye Irish Bronze Age swords, with their short hilts and rounded shoulders, look strange. Once fitted with hilt plates and a bone grip, the easiest way to hold these swords is with the thumb and forefinger over the shoulders, their tips

resting either side of the blade in the *ricasso*, the notch at the top of the blade. This gives the swordsman an effective stabbing as well as a slashing weapon. It is possible that a strap, secured by the pommel, would have helped with the security of the grip. The design of these weapons persisted in western Europe over five centuries, so we can assume that, in practised hands, they were efficient and desirable weapons.

6. THE DEATH OF THE SWORD

'The River Galliv (Galway) was dried up for a period of a natural day; all the articles that had been lost in it from remotest times, as well as its fish, were collected by the inhabitants of the fortress, and by the people of the country in general.'

Annals of the Four Masters for 1178 (O'Donovan and Ryan 2011)

6.1 INTRODUCTION

At some stage the life of a Bronze Age sword came to an end. It was no longer used for its primary purpose, as a weapon. For many, perhaps most swords, this meant what we might, through twenty first century eyes, view as a symbolic burial. For others, it meant being broken and the base material from which it was made, the bronze, being recycled and cast into new weapons and tools. Throughout the Late Bronze Age vast numbers of bronzes, including swords, were 'buried' - placed or deposited into the rivers, lakes, bogs and soils of Ireland. There they remained until chance or deliberate search led to their recovery and transfer to places above ground into a radically changed world oblivious of the original reasons for their burial. Some ended up as curios in local farmhouse kitchens, or passed into the hands of local dealers in antiquities, or were melted down; others found their way into the hands of antiquarians and collectors, their provenances forgotten or imagined

It is fortunate for archaeologists that bronze survives remarkably well when placed in the ground. Had all the swords been melted down and recycled, then we would not have the range of artefact types that covers the whole of the Late Bronze Age. We have the practice of sword 'burial' to thank for this recovery of the hundreds of known swords from Ireland. What we are unable to tell is what proportion of all the swords made during this period were buried, and what proportion recycled. How many of those deposited in the ground have been recovered (and lost to knowledge through not being recorded) and how many have yet to be recovered must remain a totally unknown quantity.

There is no known and reliable direct association of bronze swords with human burial in Ireland. The tradition of burying weapons with individuals as grave goods in marked or unmarked graves did not extend to Ireland. Instead there was a different tradition, which stretches back into prehistory, of placing complete or broken weapons and artefacts into significant locations within the prehistoric landscape. This meant they were placed either in wet places or in the soil, often beneath or alongside stones. Such a deposition may have been intended as temporary or permanent. The reasons for believing this to have been the case are discussed below.

The condition of the sword at the time of deposition appears to have been of importance to those people involved in the process of the ‘death’. By this I mean whether the sword was complete or fragmentary, and whether it had been damaged in any way. The extent of damage is significant; in particular, whether it was such as to put the weapon beyond use in the form in which it was made, i.e. as a sword. The evidence for this, the process, and the potential reasons and implications are discussed below.

6.2 DEATH AND THE LANDSCAPE

This section is focussed on the sword as an artefact placed into the landscape. There is another way at looking at this, and that is trying to envisage the landscape as the living backdrop to the many human stories and tragedies which took place during the Late Bronze Age, which must have been the catalyst for the deposition of these weapons. This section will therefore also include recent work using modern technology such as GIS in an attempt to visualise the prehistoric landscape of Ireland, particularly in relation to rivers, bogs and waterways. Since the publication of Eogan’s Catalogue of *Irish Bronze Swords* in 1965, and especially over the last two decades, there has been increased interest in the way people viewed the landscape in the Bronze Age. This is particularly so in relation to the choice of places for the deposition of particular types of artefact.

6.2.1 The Landscape of Ireland

Ireland is a wet country. More than any other part of Europe, it is water which defines and explains the landscape. The prevailing westerly winds bring precipitation throughout the year, but its position at the apex of the Gulf Stream means that almost all falls as rain, and snow is rare. The driest parts are in the east, especially around Dublin, making the east coast the part of the island most suitable for modern cereal cultivation. Upland areas lie mainly around the coast; the mountains of Kerry and Cork in the south, the Wicklow Mountains in the east, and the Mourne and the Sperrins in the north. To the west the hills of Connemara and Donegal catch the Atlantic rain. The rivers draining the vast areas of raised bog in the Irish midlands (the peat commercially used as fuel), reach the open sea only with difficulty. The Shannon flows slowly, widening into loughs as it picks up numerous smaller rivers. In the north, rivers from the drumlin belt such as the Blackwater and the upper Bann flow into Lough Neagh, or westwards to the Atlantic, like the Erne. South of the Shannon catchment area, shorter rivers such as the Barrow and the Liffey circumvent coastal hills to drain into the sea. Thus the centre of the country acts like a huge basin, and water escapes only slowly.

6.2.2 Depositional Evidence

This section will examine the evidence available relating to the circumstances surrounding the discovery or recovery of bronze swords in Ireland. This comes from information recorded concerning the recovery of swords and catalogued by Eogan in two publications (Eogan 1965; 1983) and through this research.

Each sword, as we have seen, had its own lifecycle, and consequently death, to be recovered or retrieved many years later. In common with other bronzes swords were placed beneath the surface, out of sight or perhaps visible in shallow water. In terms of recovery, out of the 700 swords in this catalogue, only a few were found under modern excavation conditions. These are discussed below. The vast majority of swords have either a vague provenance or none at all, a problem which also extends to

other types of bronzes such as socketed axes (Eogan 2000, 90). It is impossible to establish the veracity of the information provided with every weapon. It is probable, however, that any sword with a river provenance is reliable in that it is most likely to have come from the named river though its exact findspot is not discernable. Non river finds, generally, cause more problems; sword E623, for instance, said to have been found at 'Tara', is likely to be an invented provenance designed to appeal to a interested Victorian antiquarian. Contextual information is, therefore, sadly lacking for the majority of swords.

To summarise, there are two distinct sources of recovery:

River finds, either through chance, as the result of systematic dredging or, in more recent times, scuba diving.

Agricultural finds, normally through peat cutting or drainage work.

In addition, a further category which can include either of the above covers archaeological involvement:

Finds subject to excavation. This covers swords found during planned excavations, and chance finds where the find site has been excavated within a short while of discovery.

6.2.2.1 River finds

These form the single major category of sword finds. **Total figure yet to be identified, but O'Carroll (1986) gives the figure as 37% of all contexted swords.** The majority have been discovered as a result of river dredging.

The history of dredging in Ireland has been examined in some detail by Lorraine Bourke (2001) and can be summarised here insofar as it relates to sword discovery. From the nineteenth century onwards rivers were dredged to improve

navigation, involving the deepening of often narrow channels and the removal of shallow fording places and small islands. This necessitated the mechanical removal of vast quantities of river silt and the transportation of this material to other locations, normally on the river banks. Work started in earnest in 1831 as a result of the establishment of the Irish Board of Works, a body intended to improve the navigation of Irish rivers and expand the use of steam boats for trade on inland waterways. In addition to the navigation benefits almost a quarter of a million acres of land were exposed to flooding and controlling the flow of water was seen as both an essential safeguard and commercial sense for the expansion of agriculture. In addition, drainage schemes provided employment for the destitute during the disastrous famine of the 1840s.

While many rivers were subject to dredging operations during the first half of the nineteenth century, the main effort was focused on the Shannon. In 1843 the Shannon Commissioners – a separate body from the Board of Works - concentrated work on the shallowest of all the fording points on the river at Keelogue, Co. Galway. Over two metres of alluvial material and the glacial clay beneath was removed, the latter by blasting with gunpowder. Four swords in the NMI from the Wilde collection are recorded as having been discovered during this operation (E177, E178, E179, E510).

The lower Bann is the only river to flow out of Lough Neagh. Between Toome and Coleraine it flows northwards from lough to sea, draining much of modern Ulster. Between 1847 and 1861 the McMahon scheme attempted to control the level of Lough Neagh to alleviate regular flooding and to improve navigation of the river. Natural barriers to the flow were removed or lowered at Toome, Portglenone, Lough Beg, Portna and the Cutts, just south of Coleraine. Further dredging operations, instigated to complete the nineteenth century work, took place between 1930 and 1942. Bourke (2001, 23) lists 114 Bronze Age artefacts from the lower Bann. There are around 40 swords recorded as having been recovered from the lower Bann. This is around 12% of the total figure of swords from Ireland with a named provenance (named provenances total around 370, or about 55% of the total number of swords in this catalogue).

Following independence in 1922 dredging activity intensified not only in the Shannon but also in a number of smaller rivers in the fledgling Irish Free State. The years 1930 to 1934 saw work concentrated at Killaloe, Co. Clare, historically an important crossing place of the river where Brian Boru was to build his palace in the tenth century AD. Over 300,000 tons of material was removed from the river bed and dumped in Lough Derg. Some years previously Adolf Mahr had been appointed as Keeper of Irish Antiquities at the National Museum in Dublin (see History of Research). He took a close interest in the work at Killaloe and saw to it that arrangements had been made for workmen to be adequately remunerated for handing their finds to the museum. Two swords (E113 and E539) come from Killaloe during this period.

Mahr also maintained close contacts with the engineers working on the River Barrow, which rises in the Slieve Bloom mountains in Co. Laois and finds its way to the sea at on the south coast. Above Athy, Co. Kildare, the river flows slowly through a wide plain prone to seasonal flooding. Comprehensive dredging in the river and some of its tributaries took place between 1926 and 1934, when 42 bronze artefacts were retrieved, of which six were swords now in the National Museum (E8, E28, E196, E97, E189 and E493) These 34 can be added to the two discovered during nineteenth century dredging, one in Dublin (E27) and one in the British Museum (E95).

The Bann Dumps at Kilrea are made of material from the 1930s dredging discussed above. This had subsequently been planted with conifers. Systematic investigation of this riverine spoil by a team from the Ulster Museum in the 1990s produced the lower portion of a Late Bronze Age sword (E942) (Bourke 1994: Bourke 2001, 18). This involved the use of metal detectors and some mechanised stripping of the material. Organised scuba diving at places little touched by dredging has produced some worthwhile finds. Four swords from the Shannon – three complete and one fragmentary – are now in the National Museum, nos. E903, E905, **and two as yet undrawn**. These were all found during the 1980s.

Eogan (1983) mentions one, possibly two hoards as having come from rivers, though neither contains a sword. Two spearheads from Belturbet, Co. Cavan (Eogan 1983, 62, Hoard no. 49) may possibly have come from a river, while a bracelet hoard from

New Ross, Co. Waterford (Eogan 1983, 164, Hoard no.145) is stated to have been found 'in the bed of a small river'.

6.2.2.2 Agricultural finds

This category consists of swords recovered through a number of activities relating to agriculture such as drainage or land improvement. It also includes finds made during turf cutting. The cutting of peat for fuel is common across much of Ireland, especially in the west and the Midlands, where it takes now place on a commercialised mechanised basis. It is not always possible in the literature to separate turf cutting from other farming activities such as drainage or land improvement. The reclamation of bogs or boggy land for grassland has been a constant aim of improving landlords and tenant farmers for over two hundred years, and many find circumstances simply state that the sword was found 'in a bog'. Taking the two categories together, 36 swords out of 370 belong to this category...about 10% plus of provenanced finds.

While it has always been possible for local collectors or museums to keep a watchful eye over planned river dredging in a search for swords and other objects of interest, it has been far more difficult to do so for the chance finds from everyday agricultural activity. Consequently, although swords in this category are more likely to have been retrieved from the actual places where the swords were placed in prehistory than is the case with rivers finds (see below), the actual details of recovery may be open to misinterpretation.

6.2.2.3 Finds subject to excavation

Of the 700 plus swords from Ireland only a handful have been recovered under conditions where an archaeologist has had some involvement in the process, often belatedly. At first glance this is surprising considering the amount of excavation that has taken place in the 1990s and the first few years of this century; even more so when the nature of much excavation in the Republic has been to examine huge swathes of landscape in advance of road development. The solution to this conundrum

must lie in the observation that swords were placed in rivers and wet places on the edges of settlement, or specific places away from habitation, the very places that roads and development tend to avoid. They were not placed amongst houses nor randomly in the landscape. Consequently the majority of swords in this category are chance finds subject to excavation after recovery.

In February 2004 a Wilburton type sword (no. 961) was recovered as part of a hoard by a metal detectorist at Tamlaght, Co Armagh. The associations consisted of a plain copper alloy sheet vessel of Jenisovice type, and of central European origin; decorated vessel fragments of Fuchsstadt type, and a copper alloy ring. The discovery was promptly reported to the Armagh County Museum. The site was revisited and the find spot examined by archaeologists from the Ulster Museum very shortly after discovery (Warner 2006; MacDonald and Ó Néill 2009). The landscape here is typical of the terrain around the city of Armagh, consisting of drumlins interspersed with boggy areas many of which have been drained in modern times. Excavation revealed traces of a possible scabbard or sheath beneath the sword, which had been set to rest almost horizontally and lying NNW/SSE. The Tamlaght hoard appears to have been carefully and deliberately placed on the edge of an inter-drumlin bog. In the Late Bronze Age the peat underlying the hoard would have been around 0.1m deep with sedges growing here on top of the peat. The excavators were of the opinion that the objects had been gently pushed into the wet ground from the adjoining dry land. They would then objects would have been immediately taken up when placed in position and quickly vanished from sight. It is possible that a tree root marked the spot.

Tamlaght is only a kilometre away from Navan Fort, the capital of late prehistoric Ulster, which lies within what has been interpreted as a ritual landscape consisting of hill forts such as Navan itself and Haughey's Fort, and wet places such as Loughnashade and the King's Stables (Waddell 2000, 333). The bowl and vessel, imports from Europe, fit in well with the interpretation of Navan as a seat of regional power during the Late Bronze Age with an aristocratic elite able to take advantage of trade links stretching deep into continental Europe.

Further south at the excavated late prehistoric hill fort complex at Rathgall in Co. Wicklow a sword fragment (not yet drawn) was recovered from a pit together with a

small bronze spearhead and a small socketed chisel (Raftery 1973; Becker 2010). The pit lay inside a ring ditch enclosure to the south east of the main enclosure. Within the same ring ditch were three separate cremations set apart from the pit. This is the only confirmed sword or sword fragment with any degree of association with a burial in Ireland. An area to the immediate north of the ring ditch produced evidence for bronze manufacture including fragments of clay sword moulds.

A crannog settlement at Knocknalappa, Co.Clare, was excavated by Joseph Raftery during the 1930s and 1940s (Raftery 1942) and a sword fragment found on the foreshore (no.114). A larger sword (not yet drawn) was found in similar circumstances at Island McHugh, Co.Tyrone, in 1985 (Simpson 1986). This sword was discovered during assessment of this expanded natural island for further excavation following a lowering of the water level in the lake

In 1949 three swords were discovered at Ballycroghan, near Bangor, Co. Down (nos E141, E142, and E143), while a field was being ploughed at double depth (Eogan 1983, hoard no.71). Some days later the site was visited and examined by E.M Jope who was of the opinion that the field was a previously drained marsh and that, taking into account the amount of worked wood found, the site had been a crannog (Jope 1953). An early seventeenth century Clondeboy estate map showed that, prior to land improvement, the area had been marshy. Subsequent excavation by Hodges (1955) produced no structural evidence for a crannog but instead structures which were interpreted as ‘cooking places’ or burnt mounds. This is interesting as a close connection between burnt mounds and metalworking has been noted in the English Fenlands (Yates and Bradley 2010, 412).

6.2.2.4 Documented associated finds

There are a number of swords found in association with other bronzes in circumstances which have been reliably documented. Eogan (1983) lists 161 hoards most of which have only scant details of discovery. Associated finds of interest are outlined below.

At Boolybrien in Co.Clare a sword tang (no.E112) was discovered in a bog, lying on a gravel layer, and associated with a bronze horn containing socketed axes, rings, a sunflower pin, and what has been described as a chain. Another bog find, two swords with complete blades but damaged hilts (nos E134 and E135) were found some 46 cm below the surface at Carran in Co. Donegal. The Dreenan or Boa Island Hoard, from Co. Fermanagh, was discovered in 1875 during the removal of a large rock in the course of agricultural operations. A damaged and previously repaired sword hilt (no.152) fragment was found with spearheads and socketed axes.

A hilt and upper blade fragment from Park in Co. Meath (E928) was found as part of a hoard in 1974 and published by Eogan (1983,113). The other bronze artefacts recovered were a small chisel, a hollow ring and a sunflower pin. In order to remove a glacial erratic on low lying farmland a mechanical excavator was used to dig a hole along one side of the stone. The scooped material included the hoard. It is quite possible therefore that the hoard had been placed in a pit alongside the erratic which could have acted as a marker. At Cooga in Co.Sligo a sword fragment (E595), two socketed axes and what had been described as a piece of bronze cake were found ‘under a rock’ on the edge of a cutaway bog during drain making in 1941.

At Blackhills in Co.Laois (E593) a sword was uncovered in 1961 together with a spearhead and socketed axe. All three artefacts were said to have been ‘neatly’ laid out side by side in a north east/south west orientation in a garden 36 cm below the surface (Eogan 1983, hoard no.95). There is no information about the location or condition of the garden.

The large assemblage of bronzes from Dowris in Co.Offaly was found in the early 1820s and has been discussed by Eogan (1983, Hoard no.119) and Herity (1971). It consists of 185 known artefacts, and was probably even larger. Five are swords. The rest of the material varies from spearheads and socketed axes to ball shaped objects identified as crotals and even a halberd. The earliest references suggest that the hoard was found in a bog but nothing else is known.

A similar problem surrounds the ‘hoard’ from the Bog of Cullen in Co. Tipperary (Eogan 1983, Hoard no.135). A large quantity of Bronze Age material is said to have been recovered from the 1750s onwards, including four swords now lost but which survive in published illustrations. These however are a small proportion of the ‘two hundred’ swords claimed to have been recovered here throughout the eighteenth and nineteenth centuries. It is of course possible, indeed likely, that many unprovenanced swords in modern collections come from this source.

More recent finds from metal detector users are conspicuous by their absence. The Portable Antiquities Scheme does not, unfortunately, extend to either jurisdiction in Ireland and, as metal detecting for archaeological material without a licence is, in both countries, effectively outside the law, finders of prehistoric artefacts have not been encouraged to come forward. In addition, in the Republic, archaeological finds are the property of the state, while in Northern Ireland, finders have to report ‘accidental’ finds to the relevant authorities within fourteen days or risk prosecution.

6.3 DISCUSSION

6.3.1 When and where?

Swords from dredging activity or spoil searching can only be classed as single finds, though they may originally have been deposited in association with other weapons, metal or organic artefacts, or even human bones. As they have been recovered from material removed from the river the exact find spot can never be located. Even if this were possible, the river currents mean that any artefact may have been carried a considerable distance. River currents may also have the effect of grading artefacts and depositing all those of a particular size in the same place, leading to an apparent concentration of artefacts that would be wholly false (Edgeworth 2011, 63). For example, the movement of artefacts with the current may have been stopped by barriers of harder material interrupting the river flow. Such barriers regularly form shallow crossing places, and this could be one reason why so many bronzes ended up at known fords.

This causes a problem, in that, even where we have well documented evidence of a river find, the sword may not have been in the same place as it was 'buried', and there is no way of telling whether it had been deposited singly or with other weapons or bronzes. Where we have reliable evidence of a sword being recovered from a bog or farmland, then, in Ireland at least, the sword is always in association with either another weapon or what appears to be a restricted range of artefacts. These include sunflower pins, spearheads, rings and socketed axes. These have been interpreted as male artefacts.

Turning to bog finds, Becker (2008) has pointed out that many Irish Bronze Age artefacts were buried in such a manner that it would be possible to recover them. In order to do so it is essential that the find spot is marked, either by placing it alongside a natural feature or adding a marker of some sort to the landscape. The point here is that within society somebody, or perhaps a restricted circle of people, knew where artefacts were buried. Placing an object in a bog leaves no unintentional surface traces so such a 'burial' could be discreet (Becker, pers. comm). Conversely, the landscape could also be part of the pageant of display. As such, objects did not always need to be hidden; in second century BC Denmark the Gundestrup Cauldron appears to have been placed on the surface of a dry bog which only later became waterlogged (Kaul 1995). Further, as Becker (2008, 13) has pointed out in relation to bogs, these were not inaccessible empty spaces, but places with a varying landscape both on the ground and in the memories of local people. Such a concept is equally true of mountainous or craggy landscapes, where bronzes can be found deposited beneath rocks or in crevices. It is spectacularly true of streams and rivers, which, as we have seen, define the landscape of Ireland more than anything else.

Becker's work follows on from Needham (2001) who suggested that bronzes may have been placed in the ground without any specific intention, or that the final fate of any bronze may differ from that originally intended. The shallow deposition or marking of position in the landscape allows for a potential change in the life path (a 'rebirth' perhaps) of a sword, for example, as it could be easily retrieved, or it could be left in the ground or water. Thus a sword could be 'buried, or removed from circulation', and then re-used, perhaps on a number of occasions, according to the prevailing circumstances. In this instance the burial does not therefore signify a

permanent 'death' as the sword has not been put beyond further use. 'Death' could be temporary.

Returning to Irish bogs, the concept that access to such a landscape is important can be illustrated by discoveries made during excavation on the trackways and structures associated with the bog at Edercloon, Co. Longford. Here it was found that tracks ran not across the bog complex but instead seemed to converge at points within the bog where there may have been crossroads or even platforms. At regular intervals along the trackways wooden objects were found suggesting deliberate deposition. To the excavators;

'This suggests that the function of these sites was to facilitate movement within rather than across the wetlands, possibly for people coming from several directions to shared spaces.' (McDermott and Moore 2010)

The idea of shared spaces in the bog as man made features connected with deposition is worth exploring. The evidence from Flag Fen (Pryor 2005) Bradley Fen (Pryor 2005) and Must Farm (Knight 2009) is that wooden platforms were made in wetland on the edges of settlements, and in wetland between settlements which would not otherwise have been accessible. These sites lie within a kilometre or so of each other in the Cambridgeshire Fenland, which in the Late Bronze Age consisted of a series of islands separated by water channels and open water. Yates and Bradley (2010, 413), in a study of the same fenlands, suggest that the association of metalwork with causeways may be a widespread pattern throughout the fenland areas of eastern England.

The placing of swords on the edge of settlements in Cambridgeshire can be mirrored in Ireland by the recovery of swords from crannog sites at Knocknalappa, Co.Clare (E114), Island McHugh, Co.Tyrone (not yet drawn), and possibly Ballycroghan in Co. Down (E141, E142 and E143). Here we are again dealing with wet margins on the *edge* of settlement areas being considered as appropriate places for the deliberate deposition of swords. Similarly, the hoard from Tamlaght, Co.Armagh, was found within two metres of the original edge of a shallow bog (Warner 2006, 22) apparently away from any settlement. This deposition of bronzes away from settlements must

account for the fact that there is no record of a sword or sword fragment being found on any of the rescue excavations which have taken place in recent years, despite a number of Late Bronze Age settlement and burial sites being discovered.

The association with water appears to be of general importance. Again, it is worth looking at recent work on the English fenlands by Yates and Bradley (2010). This is a useful study area as it has proved possible to equate many find spots of individual bronzes with prehistoric watercourses. As in Ireland, complete swords seem to be associated with river channels. Sword fragments occur as single finds on dry land, while hoards, especially those of weapons, have been found in bogs or still waters away from the main river channels.

There is another factor that appears to operate in deposition use, in that different zones of the landscape were considered appropriate for different bronzes. In a study of deposition in the river systems of the southern Netherlands throughout prehistory Fontijn (2002, 271) concluded that meanings were attached to both places and wider zones of landscape. In a study of the weapons hoards in Northumberland, Colquhoun (forthcoming) reached similar conclusions. The latter study considered a whole swathe of land in central and mid Northumberland where hoards consisting only of weapons and what can be classed as warrior accoutrements (swords, spearheads and rings) have been found. Outside this zone only three swords have been found, one in the upper Tyne valley and two from the Tyne at Newcastle (Colquhoun and Burgess 1988, nos. 548, 715 and 716). The latter are both Gundlingen C swords and can be confidently placed at the very end of the Later Bronze Age, perhaps when deposition patterns were changing. The distribution of other bronzes, and notably socketed axes, is markedly different, being coastal and in the Tyne valley (Schmidt and Burgess). The inference is that it was not considered appropriate to place bronzes in the ground in certain areas. This is not to suggest that such zones and traditions did not alter. If this view of deposition is correct, it follows that the bronzes we have are those which were not retrieved, either intentionally or because the incentive or need to retrieve them was not there. In short, circumstances had changed. We do not have all the earlier deposited swords and bronzes because many had been returned into circulation; we only have those which were left for whatever reason. We have, in effect, evidence for the final chapter of deposition, which is why we have so many

late Dowris swords in Ireland and late Ewart Park swords in Britain, and why our metalwork record is weighted towards the end of the Late Bronze Age.

Were Irish swords placed into fast flowing main courses or slow meandering backwaters? The evidence suggests that bronzes of any sort were placed in shallow water, whatever the flow. There is, however, an issue to consider here. What did the Bann and the Shannon, the Blackwater and the Barrow look like in prehistory? There is a tendency to view the courses of all pre-industrial rivers as natural waterways, largely unaffected by the actions of the local inhabitants. Recent analysis by Edgeworth (2011) has shown that the picture throughout Western Europe is more complicated. While agricultural activity and deforestation has long been accepted as an important factor in the increase in the amount of soil being carried downstream, it is equally likely that small scale damming and minor river diversions had profound impacts on both the rate and course of river flow throughout prehistory. In addition the placing of timber bridges, weirs, fishtraps and so on would have had an impact, and we have evidence for such structures in Ireland throughout prehistory as far back as the Mesolithic (McQuade and O'Donnell 2007). This suggests that many rivers may have been more subject to change than previously thought.

An important concentration of swords can be seen at Toome on the borders of Co. Antrim and Co. Derry, where Lough Neagh flows into the lower Bann. The programme of dredging which led to so many finds of different periods is discussed above. Dredging was done largely to alleviate the problems of widespread flooding, and involved deepening the main channels of what had been a widely meandering river. One archaeological approach is to examine the distribution of artefacts and compare this with GIS models of the former riverine landscape based on information from a number of sources including LIDAR. This work is part of an ongoing project at the University of Coleraine (McNeary 2010) and it is hoped that the results may be useful for this study of Irish swords.

6.3.2 Why?

Cooney and Grogan (1999, 161) have stressed that deposition was not a random activity and that it must not be viewed separately from other aspects of the archaeological record. It was a deliberate structured activity within Late Bronze Age society and as such took many forms. The rationale behind the placing of weapons into rivers or the ground has been discussed by Bruck (1999). Deposition to the twenty first century mind appears to be a process devoid of any rationality; in the context of production and reuse it removes an article of bronze from circulation, and does not seem to make economic sense. Looking at this activity from a functionalist viewpoint is upsetting. In discussing the deliberate placing of artefacts such as broken querns or animal skeletons within ditches on Middle Bronze Age house sites, Bruck (1999, 337) makes the point that, by jettisoning the concept of ritual that archaeologists have been so used to applying to actions that appear totally irrational, or nonsensical;

'archaeologists become free to explore the possibility that even those activities so often labelled as 'functional' or 'practical' (for example, past subsistence practices) are likely to have been based on a logic for action and a model of the world very different to our own.'

Such a view allows us to place the deposition of bronze metalwork firmly into the sphere of an assumed logic rather than of ritual (by ritual I mean a sacrifice or offering). This theme of a different worldview in the Late Bronze Age has also been investigated by Matthews (2008). He looked at the Danish material and the associations of bronzes with organic materials. Whereas in most conditions these fail to survive, there are some Danish examples such as the hoard from Budense, Zealand, where bronze ornaments have been found in direct association with wood, stones and domesticated animal remains. The hoard is a collection of different materials where each material appears to have had a function, the meaning of which made sense to those people who were involved in its deposition. Rather than being an offering, therefore, the placing of a sword into the ground may signify a direct connection with an earthly event. This may of course be the death of its owner, or it could be the death

of an enemy. It may mark a transitional period in the life of an individual or the changing circumstances of a community.

6.3.3 Bronzes and Bones

There is no dependable record of any Irish sword being found directly with a burial as part of a burial deposit. But were swords placed into rivers with dead bodies as part of the act or ritual of burial? This possibility has been discussed in the past as some nineteenth century articles suggest that some Thames bronzes were found alongside human skulls (Bradley 1988) though not complete bodies. More recently, Mark Knights' work at Must Farm in the Cambridgeshire Fens has led to the suggestion that swords and spears were being placed into the rivers along with corpses. While the metalwork would sink, the corpses would be carried away by the river flow (Symonds 2012, 19). While this is an attractive idea, it is difficult to consider as a regular process which would apply to all sword deposition. In Ireland especially, in places such as bogs where the soil conditions are favourable to preservation, some survival of human remains could be expected in such circumstances.

There are however some recorded associations of human remains with deposition connected with bronzes and bronze working. Placement of skulls in a wetland context in Late Bronze Age Ireland has been discussed by Cooney and Grogan (1999, 146). There is an association of a bronze dagger lodged in a skull from Drunman More Lake, Co. Armagh (Waddell 1984) which may have been part of a complete inhumation. Human skulls were also found associated with the lakeside settlement at Ballinderry, Co.Offaly (Hencken 1942, 17) and a partial skull at the King's Stables in Co.Armagh, which also produced part of a clay mould for a sword. Here, and in the Thames cases discussed above, it may be that the association is not directly with the bronzes but more with the sense of place, in that locations may be considered suitable for the placement of human skulls in much the same way as they were considered suitable for bronzes. Any deposition of skulls, therefore, may not have been contemporary.

6.3.4 Death by breakage

The deliberate breakage of objects prior to deposition has a background extending through the Neolithic into the Mesolithic. For example, stone axes were deliberately damaged and placed in apparently significant locations such as within the ‘temple’ complex at the Ness of Brodgar in Orkney (ref). Breaking or damaging bronze swords prior to deposition is a common feature throughout Atlantic Europe. The extent and nature of the damage to individual swords is noted in the catalogue. In a previous chapter on the *Life of the Sword* damage caused during use of the weapon was discussed. In practice, this is indicated largely by a number of small nicks along sword edges where the edge has been in contact with another hard object when used with some force. In addition broken hilts, many subsequently repaired, are likely to have been the result of force.

It is however apparent in some swords that the extent of damage sustained is greater than that to be expected during what we may interpret as intended use, either as part of warfare or as part of practice. This means such damage has been done deliberately with the intention of putting the sword beyond further use as a weapon in the form in which it was made. Such damage takes the form of bending the blade and inflicting large notches along the edges, often both together. This can be clearly see on a number of Irish swords such as one example from Knockadoo in Co. Roscommon found in association with a less damaged sword. (E249 and E250). Similar practice throughout western Europe has been investigated by Quilliec (2008). She came to the conclusion that such damage could only be inflicted by a bronze ‘craftsmen’, that is somebody skilled in working with metals. This puts a bronzesmith at the centre not only of the birth of the sword but also its ultimate death.

6.3.5 Conclusions: Toward a model of Sword Deposition in Ireland

The above discussion has shown that while we have a large number of swords from Ireland, we have precious little evidence regarding the circumstances in which the majority were found, and, therefore, the circumstances in which they were deposited. Where we do have good, or at the least, reliable, evidence, then there are a number of

common features. These can be compared with the published literature concerning bronze deposition generally in Ireland, Britain and Europe.

The **first feature** is that where we have evidence regarding discovery, swords are generally found in association (although not necessarily close association) with either other swords or a limited range of bronzes. Finding a sword in complete isolation is rare.

The **second** feature is that generally **complete or near complete?** swords were carefully deposited, and normally not at any great depth.

The **third** feature is that some swords were damaged beyond repair, and some were not.

These features will be considered separately below.

The **first feature** is that where we have evidence regarding discovery, swords are generally found in association with either other swords or a limited range of bronzes. We can therefore deduce from this, as a working hypothesis, that it may have not been considered the norm to deposit swords in isolation from other swords or bronzes. This suggestion, as a general feature of western European Late Bronze Age practice, is supported by evidence from excavations outside Ireland.

The **second** feature is that generally **complete or near complete?** swords were carefully deposited, and normally not at any great depth. This is important. It signifies that deposition did not necessarily take the weapon beyond recovery. Some deposits, notably those in shallow water, may have been visible to all. This concept, of careful deposition in water, can equally be applied to the flowing water of river edges or fording places and the still water of such places as bogs, ponds and lakes. Others deposits, marked by stones such as the Park Hoard (Eogan 1983, no.114), may not have been visible but the location may have been known by many and may have had an importance in itself separate from its status as a burial place. That is, the location of itself may be important to people with an intimate knowledge of the landscape. This

suggests that the swords may, in effect, not have been hidden from view or local knowledge.

The **third** feature is that some swords were damaged beyond repair, and some were not. This is in addition to the edge damage visible on weapons which can be taken as part of the 'life' use of a weapon. This damage can be shown in most cases to have been intentional, especially where the sword has been bent. Matthews. 'killing' of the sword takes the weapon beyond recovery from its initial form. While the sword had died, the killing may have been visible to all and it may have been the display of the damaged swords or the knowledge of display that was important.

Swords belong in the Late Bronze Age landscape. There is a proper place for them there, on the edge of land in shallow water, or near water, away from settlement, together with other swords or other bronzes. Carefully laid, grips removed, their placement maintains the order of things.

7. GENEALOGY

7.1 INTRODUCTION

The metalwork phases of the Irish Middle and Late Bronze Ages currently in use were named by Eogan (1964) after some of the major hoards found in Ireland. The three periods which span sword use are Bishopsland, Roscommon and Dowris. The Bishopsland phase has its roots in the Middle Bronze Age and Eogan clearly established its close connections with the ‘Ornament Horizon’ phase of southern Britain (Smith 1959). He dated it between 1200 and 900 BC. The Roscommon phase followed, spanning the ninth and eighth centuries. Eogan started the final phase of the Bronze Age, the Dowris Phase, in the eighth century and continued it well into the second half of the first millennium, commenting that dating for the end of the period was ‘murky’ (Eogan 1964, 321). The vast majority of Irish swords can be dated to the Dowris phase.

Dating will be discussed below in relation to each separate type. Here it is worthwhile having an overview, especially in relation to the work in recent decades on radiocarbon dating of close associations with bronze artefacts and subsequent revisions by various scholars which will be discussed below. To summarise, the Bishopsland Phase, contemporary with Penard in Britain, can now be dated to between 1300 and 1150 BC, with the development of the first swords of Ballintober type around 1200 BC. The Roscommon Phase can now be started around 1150 BC, with the first Wilburton influenced metalwork found its way to Ireland in the following century. The first half of Dowris at least can be seen as contemporary with the Ewart Park Phase in Britain, starting around 1000 BC with the introduction of Blackmoor horizon swords which were to have a significant influence on the development of specific Irish sword types. In the half century since Eogan’s article was published dating of the period has moved on apace, and it is now difficult to envisage a major time lapse between Ireland and its European neighbours. When the Dowris Phase ended is still perplexing. Eogan stretched it well into the Iron Age, though, as we shall see below, it is more likely to have finished within a century of the end of the Llyn Fawr period in Britain, dated now around 700 BC.

The table opposite shows the Irish periods and the proposed alignment with recent British and continental dating, following on from the work of Needham (1997), Gerloff (2007; 2010) and Matthews (2011).

7.2 TYPE BALLINTOBER

This is the earliest type of leaf shaped sword found in Ireland. The hilt is simple and unflanged, either rectangular or tongue shaped. The rivets for the grip were attached to the hilt either through rivet holes, normally four arranged in pairs, one above each other. Some swords have side notches instead. The shoulders are wide and markedly pointed; beneath there is normally a distinctive and blunted ricasso, sometimes with a notch where it joins the top of the blade edge. Some well preserved swords such as nos. have ricasso bevelling extending to the shoulder points. The blade itself is always leaf shaped, though the length varies considerably from to. The blade cross section is normally lozenge shaped, though a small number of swords have a more flattened midrib with wide bevels (Chelsea variant). On the better preserved swords the edge is always clearly bevelled. Eogan (1965) classified Ballintober swords as his Class I.

7.2.1 Distribution

The Irish swords were mapped by Hodges (1956) and the more recent discoveries in this catalogue do not change the essential distribution. Only one sword, a Chelsea variant, has been found south of the Liffey at Passlands (Monasteravin), Co.Kildare, with the majority coming from the Ulster rivers. They thus have an essentially northern distribution.

The British distribution of Type Ballintober and the Chelsea and Irish variants shows a clear concentration in the Thames Valley, with a scattering of swords from either side of the Bristol Channel both in England and south Wales. An even thinner scatter extends across central England (Burgess 1969; Colquhoun and Burgess 1988; Matthews 2011). Only one sword has been found in Scotland, from the North Rhinns of Galloway in the south west, within sight of the Cliffs of the Antrim Coast (Cowie and O'Connor 2007). There are nineteen swords from France, where they have been

found mainly in valleys of the Seine and the Loire with a couple of examples from eastern France (Gomez 1987, fig 1).

7.2.2 Origins

Ballintober swords were defined as a type by Hodges (1956) who identified that similar weapons to his Irish examples had been found both in France and southern Britain. Typologically they show a mixed ancestry from three sources; late rapiers, other early tang hilted swords, and early flange hilted swords. In effect they are a progression from rapiers already being produced in Ireland being influenced by imported sword types. The leaf shaped blade of Ballintober swords is a new, introduced, development which defines them as weapons with a slashing capability.

The detailed development and chronology of Ballintober swords has been the subject of much debate since Trump (1962, 93) recognised their ancestry amongst the myriad of late rapier types in the Seine valley and suggested that they developed there. Amongst these rapier types was the Rosnoen sword, named after examples from the hoard published by Briard (1965). These tang hilted swords have blades with tapered sides and a mid section that is flat or slightly rounded, defined by deep bevels. There are a handful of Rosnoen swords from Britain with a surprisingly wide distribution (Colquhoun and Burgess 1988) as well as other related early sword types. There are however none from Ireland which pre-date the Ballintober type.

Colquhoun and Burgess also noted an Irish variant, differentiating them by the more widely splayed shoulders. It is also noteworthy that Ballintober swords from Ireland generally have a more developed ricasso with a distinctive notch at the top of the blade edge. On the British swords the edge ends abruptly well below the ricasso, in the manner of Rosnoen swords. The French swords show the same features as the British, suggesting that the Irish swords are furthest away from the Rosnoen progenitors. It seems therefore that the presence of Ballintober swords in Ireland is due initially to trade links with the Thames area through the Bristol Channel. These swords were then taken up with enthusiasm, with Irish bronzesmiths soon developing their own versions. The widely splayed shoulders of Type Cutts dirks, many with wide blades (Burgess and Gerloff 1981, pls 100 and 101 in particular), must have

influenced the development of Ballintober swords by Irish bronzesmiths. There is an alleged association of the sword from Strabane, Co.Tyrone (E12) with ‘gold objects’ and ‘ring money’, all of which has been lost and no drawings exist.

In view of this, we (Colquhoun and Burgess 1988, 21) suggested that the impetus for the development of the Ballintober type took place in England following the importation of these Rosnoen as well as rod-tanged swords from across the English Channel. There have been no new finds since to suggest that this view should be altered.

Two of the Irish swords E8 and E10 have flattened blade sections comparable with the English Chelsea variant, but exhibit the standard Irish wide shoulders. This was a period of experimentation where we should expect variety. The flattened blade section is a feature of Cutts dirks, from where it was probably derived.

7.2.3 Dating

There is a general paucity of early swords from Ireland, and no associated finds with Ballintober swords, so we must look elsewhere for dating associations. In Britain where there are three swords with associated finds. The Penard hoard from south Wales has three fragmentary swords associated with a spearhead, a socketed axe and an arrowhead. Two hilt and upper blade fragments are clearly Type Ballintober, while a slender blade in two pieces is of Type Rosnöen. The socketed axe is an early type datable to BzD/Ha1. At Thorpe Hall in Essex there is an association with a rapier and palstave (Smith 1959), while at Worth in Devon a sword that looks little more than a developed rapier with poorly defined shoulders was found with two pegged spearheads.

Associations in France

The dating of the Rosnoen Hoard in Brittany is Bronze Final 1, which correlates with BzD/HaA1 in central Europe and Burgess’s Penard Period in Britain. The lozenge shaped cross section of Ballintober swords can be traced to the influence of early flange hilted swords, notably Type Hemigkofen, as can the waisted leaf shaped blade.

So we have a marriage of two types of early sword, with a Rosnoen hilt and early flange hilted blade. Hemigkofen swords are discussed further below, but we need to note that their earliest appearance in Europe is most likely to have been in BzD/HaA1, perhaps shortly after Rosnoen Swords (Burgess and Colquhoun 1988, 27). Matthews (2009, 89) has argued for a later date to allow for the influence of Hemigkofen swords on Ballintober development in Ireland, especially in relation to the prominent use of the ricasso in Ireland when compared with Ballintober swords from Braiaín. This would put most of the Irish swords in HaA2, late Penard in British terms. In her recent analysis of British dating compared to the rest of Europe, Gerloff also argued that the development of Ballintober swords in Ireland dates to HaA2.

To cross the Irish Sea once again, Eogan's Bishopland phase can be equated with the Penard phase, though Gerloff would extend it to overlap with early Wilburton, HaA2 in continental terms.

Thirty years ago it seemed plausible to argue that the earliest flange hilted swords were too late to have influenced the development of Ballintober swords in England (Burgess and Colquhoun 1988, 21). However I would now turn this on its head and agree with more recent commentators that, given the apparent influence of early flange hilted swords on the development of the Ballintober type in Ireland, it seems reasonable to place them towards the end of the Bishopland Phase in Ireland, and contemporary with late Penard in Britain. In absolute terms this would put the development somewhere between 1200 and 1100 BC. There are comparatively few early flange hilted and Wilburton swords from Ireland, which has led to the suggestion that Ballintober swords had a long currency compared to their use elsewhere, into the Roscommon phase (Matthews 2011)

7.3 EARLY FLANGE HILTED SWORDS

These are the swords of Eogan's Class Two. They are what we would immediately recognise as the progenitors of developed Late Bronze Age swords, with long, wide leaf shaped blades. The hilt always has flanges on either side of a thin tang, the shoulders are wide and U shaped, and there is always a ricasso with a distinctive notch where the ricasso meets the blade edge. The blade or hilt are sometimes

decorated. The blade is always leaf shaped, while the section is always lozenge shaped, sometimes with a prominent midrib.

The Irish swords of this type are a mixed lot, and it is convenient to deal with them together

7.3.1 Distribution

The distribution of the swords is essentially northern, with a scattering through Counties Kildare, Westmeath, Clare and Monaghan north to Fermanagh and east to the River Bann.

7.3.2 Origins

Burgess and Colquhoun (1988) divided the British early flange hilted swords into types Reutlingen, Hemigkofen, Erbenheim, Clewer, Limehouse, Taplow, Mortlake and Teddington. This reflects the fact that there are over 80 swords which fit into this category, compared with 12 (??) from Ireland. There are a number of factors which are common to all types, such as wide U shaped shoulders and a lozenge sectioned blade. The origins clearly lie on the Continent of Europe where there are examples.... Following on from the links with Britain apparent with the Ballintober series, it seems reasonable to suggest that these swords reached Ireland through the link with the Thames Valley

The Irish swords can be classified AT LEAST into two of these types, Type Clewer for nos. E26 and E29 and Type Limehouse for nos. E24, E28, E31 and 930.

7.3.3 Dating

These swords lie at the head of development of flange hilted swords and indicate a high degree of experimentation both in form and use over a relatively short period. Their overlap with the more common Ballintober swords has been discussed above, so it follows that the dating, at least of some of the sword types, must be comparable, i.e. the end of the Bishopsland Phase and into Roscommon. In absolute terms this

should put us in the twelfth century BC. Generally, we are looking at a late BzD/HaA1 background through to HaA2. Early Wilburton swords were being developed in Britain by 1100 BC.

7.4 TYPE TAMLAGHT (WILBURTON)

This type is named after the sword found in a hoard at Tamlaght near Navan in Co. Armagh, in 2004. The most obvious characteristic features of Type Tamlaght are the wide splayed shoulders, either straight or very slightly U shaped or convex, and a long, prominent, curved ricasso. Occasionally slight ricasso bevelling is present. The hilt terminal is generally fan shaped, while the hilt itself is straight sided or tapering, normally narrower at the terminal end. There may be either slots or large rivet holes (two or three) on the hilt, and normally large rivet holes on the shoulders, either two or three on each side. Hilts are always flanged.

The blade is always a wide and prominent leaf shape with a comparatively wide waist, sometimes almost balloon shaped. Blade cross section is either a flattened lozenge or elliptical.

7.4.1 Origins

Eogan placed swords with characteristics similar to the British Wilburton Type into his Class 3, which comprised twenty swords, most of which can be classified as Type Tamlaght. Warner, in his discussion of the eponymous hoard found in 2004, identified the sword as a transitional type between classes 2 and 3, that is between early flange hilted and the Wilburton Type. A closer examination of the sword suggests it would fit comfortably into the Wilburton family, specifically Type G (Colquhoun and Burgess 1988). This would put this particular sword towards the end of the Wilburton development in Ireland. Links with N England (Wallington - Burgess 1971)

There is no confirmed Saint Nazaire sword from Ireland so development was presumably through Britain.

7.4.2 Distribution

Compared to the essentially northern distribution of Type Ballintober, Tamlaght swords come from a wider area, with a number of swords originating from the Midlands and south.

7.4.3 Dating

The sword from Tamlaght, Co. Armagh, was found in association with a small Fuchstadt bowl and a cup of Jenišovice type (Warner 2006), both imports from central Europe. Fuchstadt bowls are generally dated to Hallstatt A2/B1, while Jenišovice cups can be placed in Hallstatt B1. Such a date fits well into a middle Wilburton horizon in the eleventh century BC.

7.5 IRISH EWART PARK SERIES

The vast majority of finds of bronze swords from the Late Bronze Age throughout Britain and Ireland have similarities which clearly link them together. Eighty years ago J.D. Cowen introduced a neat and workable definition of this type of sword most common in the latter part of the Bronze Age, which he named after the three weapons from the Ewart Park Hoard in Northumberland. This definition has stood the test of time well and the use of Ewart Park or simply 'Ewart' to define this type of weapon has become ubiquitous not only in Britain but also among scholars from western Europe. Eogan followed Cowen's definition to define his Class IV sword in Ireland; elsewhere the sobriquet has sufficed.

The standardisation of the blade and hilt shape makes meaningful classification difficult. It is straightforward to recognise weapons at either end of the dating spectrum. The development of Ewart Park swords from Wilburton swords, whether in Britain or Ireland, is demonstratable. Features derived from Wilburton are;

Hilt slots

Convex shoulders

Curved ricasso

Graceful leaf shaped blade

Classifying the British series for PBF in the late seventies led to myself and Colin Burgess dividing the material into four steps based on regional divisions. In essence the steps followed the same basic observations of hilt and blade features that are used here, except that I have divided the Irish Ewart Park series into three sub types. Type A comprises those weapons at the head of the series. Associations in Ireland are generally few and of limited use. The best example of a collection of weapons of this type is from Blackmoor in southern England (Colquhoun 1979). Consequently Irish Ewart Park A swords belong to what would be the Blackmoor Horizon in the development of the British series. Irish Ewart Park B swords are a clear development from the Tamlaght type, Wilburton in Britain, with wide, graceful blades and curved ricassi. Irish Ewart Park C swords share two features which may well be insular, namely a ricasso notch and a slightly foreshortened blade, wide beneath the ricasso.

A study such as this of the bronze swords of Ireland is a good place to question whether Cowen's definition is still valid eighty years later. Brown (1982) urged caution about the relative dates of Eilburton and Ewart Park swords and suggested that an overlap could and should be envisaged.

7.5.1 Irish Ewart Park A (Blackmoor Horizon)

These features are slender hilts, often tapering towards the terminal, splayed, narrow straight or slightly convex shoulders and a short, curved ricasso. The blade is always leaf shaped, and tapers to a distinct point. Length between

As these are small swords there is normally only one rivet hole on each shoulder, and two on the hilt. Ricasso bevelling standard.

7.5.1.1 Origins

Surprisingly there is one hoard from southern England with swords where the hilts can be compared with these Irish weapons, and that is the Blackmoor Hoard from Hampshire (Colquhoun 1978), though the ricassi are longer.

7.5.1.2 Dating

Associations.....Blackmoor Horizon/ early Ewart Park.

7.5.2 Irish Ewart Park B

Large, grace and wide leaf shaped blade of proportionate shape and ending in a slender point.

Deep and curved ricasso, normally long and merging into the blade bevel

Blade bevel ends at base of ricasso

Straight or gently curved wide shoulders

Rivet holes normally large

Hilt sides normally gently bulging in lower third.

7.5.3 Irish Ewart Park C

Leaf shaped blade of variable length and width. The blade is often wide below the ricasso and the lower third foreshortened.

Straight or slightly curved ricasso, notably shallow and vertical when compared with series A.

Ricassi often notched where they touch the shoulders.

Blade edge chamfers extend into ricasso edges.

Straight or gently convex shoulders.

8. DISCUSSION

9. CONCLUSIONS

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Table 1

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
ID	Findplace	County	Museum No.	Collection	Eogan Type	Type	Status	Length	blade width	Shoulder r width	Weight	Patina	Hilt	Condition	Find Circumstances	Associations	Bibliography	Research Notes
1	River Barrn*	Antrim/Derry	UM 1.37.1934		1/1	Ballintober	Hilt & upper bl.	252	39	47		Dk brown	4.2R	2 pieces	B. From the Barrn during 1930s drainage operations		Bourke (2001), no. B90	Round rivets 4mm diameter
2	River Barrn	Antrim/Derry	UM 106.1961		2/1	Ballintober											Bourke (2001), no. B91	
3	Tullybortane	Tyrone	UM 108.1961		3/1	Ballintober												
4	Irish Coleraine*	Derry	NMI W.23		4/1	Ballintober	Ballintober	458	32	48	230	Dk brown	4	3 pieces soldered together	R Barrn at 'The Cuts' (E) B. C19 drainage operations at the Cuts		Bourke (2001), no. B88	
5	Ulin*	Down	NMI 1980.1		5/1	Complete	Complete	615	37	52	531	Black	6	Good, surface oiled. Edges undamaged				Stono central midrib
6	Lough Erne*	Fermanagh	NMI RSAI 155		6/1	Ballintober	Complete	438	38	43	391	Dk brown	4	2 pieces, blade straight	B. C19 dredging	Bourke (2001), no. E47	JRSAI 16 (1983-4), 116	Rivet diam 3mm. Longest 12mm long
7	Pottora Ford*	Fermanagh	UM A12657		7/1	Ballintober	Complete	520	44	46	602	Dk brown	4	Good, blade worn	B. From the riverbed prior to building of sluice in 1955. Other artefacts also found.	Bourke (2001), no. E48	Hodges (1957), 64, fig. 1.1	
8	Paslands*	Kildare	NMI 1940.310		8/1	Ballintober	Complete	505	34	53	387	Black, patchy	4	Minor edge damage, both edges	Label: 'In River Barrow at Paslands, Co Kildare' E. - during drainage.			
9	Ballintober *	Mayo	NMI 1936.1984		9/1	Ballintober	Complete	505	37	53	459	Black, patchy	4	Ricasso beveling visible both sides				
10	Bohermeen	Meath			10/1	Ballintober											Wood Martin (1886) 171, pl.37; Hodges (1956), 41	
11	Walsh Island*	Offaly	NMI 1932.6556		11/1	Ballintober	Complete	435	36	54	370	Dk brown	4	Pitted surface, edges damaged			Report NMI (1931-2), 13, pl.2.3	
12	Strabane*	Tyrone	UM 477.1937		12/1	Ballintober	Complete	412	28	32	218	Green	4	3 pieces, Corroded edges	Label'E: 'With some figs of gold & piece of ring money, Strabane, 1877'	See find circumstances	Eogan (1983), Hoard no.33	
13	Athlone*	Westmeath	NMI W.42		13/1	Ballintober	Complete	493	48	54	522	Black	4	Minor edge damage	B. Recovered from the Shannon at Athlone during C19 dredging operations	Bourke (2001), no. S113		
14	R. Shannon*		NMI W.66		14/1	Ballintober	Complete	535	37	50	583	Dk brown, patchy	4.1R	2 pieces soldered together	B. Recovered during C19 drainage operations	Bourke (2001), no. S114		Rivet diam 3.2mm
15	Island*	Armagh PL 136	Beresford		15/1	Complete	Complete	485	36		520	Dk Brown	4	Damaged sh. Badly pockmarked surface				
16	Ireland*		UM 1911.133A	BNHPS/Danmore	16/1	Ballintober	Complete	477	37				4	Worn bl. 3 ann. ecc. badly joined				Sections good EXCEPT point. Upper bl joint not right. Ex Lough Danmore 1930
17	Ireland*		NMI W.41		17/1	Ballintober	Complete	479	48	50	565	Black	4	6 pieces soldered together				Edges undamaged. Slight & narrow bevels. Hammering marks on each piece.
18	Ireland*		NMI W.43		18/1	Ballintober	Complete	450	43	46	422	Patchy black	4	Cuts at shs are modern			Wilde (1961), 443, fig. 117	1 nick on blade, otherwise undamaged
19	Ireland*		NMI W.78		19/1	Ballintober												
20	Ireland*		NMI SA.1889.113		20/1	Ballintober	Complete	522	36	51	501	Black	4	Edges undamaged. Bl. slightly bent				One shoulder damaged. Good bevel
21	Ireland*		NMAS DM9		21/1	Ballintober	Complete	550	40	50	566	Black	4					Pronounced rounded central rib. Some greenish corrosion
22	Ireland*		NMAS DM13		22/1	Ballintober	Complete	493	36	52	386	Black	4 (21)					
23	Ireland*		NMAS DM14		23/1	Ballintober	BI & Shs	451	49	49	490	Black					Bourke (2001), no. B90	
24	Toome*	Antrim	NMI W.1		24/1	Limehouse	Black	674	40		677	Black	SI.4	Bevel & ricasso worn			Bourke (2001), no. B92	Sharp ridge edges
25	Cohy*	Clare	NMI 1932.6685		25/1	Wilburton?	Hilt & Sh. lft	207		58		Dk brown			B. C19 drainage spread over Toome Bar bottom with other artefacts 0.3 to 0.9m under sand	Bourke (2001), no. B92	Bourke (2001), no. B90	
26	Ballinamallig*	Fermanagh	BM 64.5-3.1		26/1	Edenheim?	Complete (tang drop)	545	36	59	550	Dk brown	03.08.00	Hilt Barrow rough	In a bog about two metres below the surface (E) NMI: no info			
27	Athy*	Kildare	NMI P240		27/1	Wilburton?	Complete	614	45	67	570	Black	3.4.3R	Well cast & good lozenge sect. Edge damage	From R iver Barrow			CBB. Nice boy rivets 5 diameter.
28	Barrowford*	Kildare	NMI 1996.37		28/1		Blade & shs	532	37	59		Patchy dk brown	7.4	Marked damage to one edge & ricasso	Dredged from R Barrow by GPW, 1930s. Donated by W. Wynn, Desc of Barrow, TCD			
29	Listlirim*	Monaghan	NMI SA.1913.118	Day Private	29/2	Edenheim?	Complete	613	48	58	789	Black	SI.6.6R	BONE HILT PLATES.	Found in Listlirim Bog (E) Label adds Muckno as townland			Day (1968), 23-4; Day (1969), 80; Sale Catalogue of the Day Collection (1913), lot 310, pl.15; Evans (1981), 295-6; Mahr (1939), pl.6.3; Rathery (1961), 80, 174
30	Ulin*	Roscommon			30/2	BI lft												CBB. Hilt plates are loose & backed with cast W. 790s inc hilt plates
31	Ireland*		NMI W.84	Wilde	31/2	Hemlockton?	Upper bl & shs	307		61		Black	SI.6	Bl corroded				Metall (1855), 323, 325.
32	Ireland*		Asken 1927.2895		32/2	Upper bl & shs												Item with grooves on blade. Hilt outline visible
33	Ireland*		UM 474.1937		33/2	Black & shs												
34	Belfast*	Antrim	Camb WR27.6198		34/2	Blade		521	31			Dk brown	7.4	Damaged & corroded. Some bud				CBB
35	Belfast*	Antrim	Camb WR27.619A		35/2	Blade		432	47			Dk khaki		Rough surface & serrated edges				
36	Tullyballydonnell	Antrim	UM 265.1947		36/2	Blade		258	43			Dk brown		Ground blade. Pockmarked surface	1900' written on blade			
37	River Barrn*	Antrim/Derry	UM 1.34.1934		37/2	Blade									B. from the Barrn during dredging operations in the 1930s	Bourke (2001), no. B94		CBB
38	Listla	Antrim/Derry	UM 88.1954		38/2	Blade									B. from the lower Barrn, presumably during dredging operations, at Rea's Ford	Bourke (2001), no. B93		
39	Donaghmoon*	Tyrone	Armagh C 24.1942		39/2	Blade		381	48					Mtw near point. Probably fake	Museum cat: 'Collected in neighbourhood of Donaghmoon'			
40	Ireland*		UM 3890 (B.6)		40/2	Blade												
41	Ireland*		NMI 1987.49		41/2	Blade		260	41			Matt black						CBB
42	Ireland*		NMAS DM84		42/2	Blade												
43	Carntroon*	Antrim	NMI SA.1927.929		43/3	Complete	Complete	592	43	58	546	Black/brown	SI.6.1R	Edges damaged	Found during turf cutting at the foot of Steamish Mountain. It was broken by the finder (E)			Knowles (1889), 11; Knowles (1903), 182-3 fig 10; Knowles Cat lot 664
44	Tynan	Armagh			44/3													
45	Ballynahinch	Cavan	NMI 1939.15		45/3	Complete	Complete	534	42	51	467	Black	SI.4	3 pcg. edges damaged				
46	Eonan*	Cavan	NMI 1941.1943		46/3	Complete	Complete	593	46	66	654	Black	02.04.00	Undamaged with sharp edges	NMI cat: 'Enish, Kilmore, Loughlee Upper' Label: 'Finder Edward Letimer, Grahard, Cloverhill at Lough Oughter Castle' E: Found in a potato garden on the top of Keenalee, Noan townland			Bourke (2001), no. E52
47	Irish Oughter Castle*	Cavan	NMI 1937.3646		47/3	Complete	Complete	599	41	51	420	Black, patchy	SI.4	White accretion on hilt. Bl cracked				Bourke states this is a 1930s find
48	Noan*	Clare	NMI 1942.70		48/3	Complete 4 pcs	Complete 4 pcs	511	39			Dk khaki	SI.2el	Jaco smooth surface, edges damaged			Macnamara (1901), 368.	
49	Irish Youghall*	Cork	NMI R. 2226		49/3	BI & shs		529				Green	7.6	Very corroded	Unknown	1 sw (E50) & 2 sph	Armstrong (1924), 143, fig 6.1; Eogan (1983) no.31	
50	Irish Youghall*	Cork	NMI R. 2267		50/3	BI & shs		516	46	56		Green	7.2	Corroded	Unknown	1 sw (E49) & 2 sph	Armstrong (1924), 143, fig. 6.2; Eogan (1983) no.31	
51	Ballyhanna	Donnegal	Rossnowlough D.29		51/3										Discovered in the bed of the River Erne at Cathleen's Falls, near Ballyshannon	Bourke (2001), no. E64		Bourke has Museum in Rossnowlough Franciscan Friary
52	Lough Erne	Fermanagh			52/3										Dredged from Lough Erne in 1887.			McKenna (1897), 112; Bourke (2001), no. E49
53	Maguire's Bridge*	Fermanagh	NMI 1873.1		53/3	BI & lower hilt		550	38	48		Black	02.02.00	Blade & hilt oiled				McKenna (1897), 112; Bourke (2001), no. E49
54	Ballynagar	Galway	NMI 1945.63		54/3	Complete	Complete	494	46	57	436	Black, cleaned	2.02.7.4	Beautiful. Shs edge damage.				Sale Catalogue of the Day Collection (1913), lot 299 pl.15; McKenna (1897), 112
55	Castledermot*	Kildare	NMI 1945.304		55/3	BI & shs		563	50	57		Black	7.6.1R	Slight, narrow bevels. Nice point				Fitzgerald (1902), 265-7
56	Lough Gur*	Limerick	NMI 1888.11	NMI 1873.1	56/3	BI & lower hilt		565	48	54	644	Black	SI.6	Shiny surface. Replica? see notes. Hilt r				Surface slightly porous
57	Glenties	Antrim			57/3													O'Kelly (1945), 35
58	River Shannon*	Westmeath	NMI E92.405	Chasman	58/3	Complete	Complete	574	50	57	591	Black	02.06.00	Good hilt repair	Unknown. Notes in Eogan, see comments			Sale Catalogue of the Knowles Collection (1927), lot 694, pl.4
59	Ireland*		Alnwick Castle 391	Walker?	59/3	Complete	Complete	560	45	56	572	Dk brown	SI.6	Tano dam. Hilt good. Bl edge damage & corrosion				Wilde (1961), 442
60	Ireland*		NMAS DM 23		60/3	Hilt & upper bl.		269		57		Khaki	3.2.1	Two pieces. Well made & finished				fig 313; Wood-Martin (1889), fig. 183; Bourke (2001), no. S115
61	Ireland?		Oxford PB 2626.1901	Beil?	61/3	Complete	Complete	470	33	45	372	Dk brown	SI.6.3R. RQ.28 diam	Wavy & corroded blade				
62	Ireland?		BM 65.6-27.114		62/3													
63	Ballymena*	Antrim	UM 467.1937	Day	63/4	Complete	Complete	568	39	53	700	Dk green	2x(2h)-dl(2h)	Well cast. Corroded edges, hilt & tang				Sale Catalogue of the Day Collection (1913), lot 309, pl.15
64	Ballymena	Antrim		Day	64/4													Sale Catalogue of the Day Collection (1913), lot 309, pl.15
65	Ballymoney*	Antrim	UM 544.1924	Knowles	65/4	Complete	Complete	480	34	46		Brown		Good. Well cast. All one piece				Not removed from case in Ballymena. Sketch & 1/8th measurements mine, L. Eogan's
66	Ballymoney	Antrim		Wells, Harrow	66/4													Eogan drawing based on BA Card Catalogue
67	Belfast*	Antrim	UM 402.36.71		67/4	Shs & bl in 3 pieces		493	39	49				About 3.7m below the surface of Antrim Rd, Belfast, while excavating for a new water supply				
68	Clonm	Antrim	BM WG.1233	Greenwell	68/4	Complete	Complete	592	39	47	492	Brown, patchy	3.3	Well cast. Some bud				Sale Catalogue of the Knowles Collection (1926), lot 667
69	Clontarf	Antrim		Knowles	69/4													Eogan drawing based on BA Card Catalogue

Table1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
70	Cashendall	Antrim			Knowles	70/4												Sale Catalogue of the Knowles Collection (1924), lot 657	Eogan drawing based on BA Card Catalogue
71	Stranocum	Antrim	BM WG1232	Greenwell	71/4			Complete	508	39	49	Dk brown	2 (1 large) 2 (+4b)	Good condition		Label reads 'Stranocum 1770.2322'			
72	Lisburn	Antrim	UM 188/1913	Day	72/4			Hilt & blade	468	27	34	Dk brown		02-02-00	Worn blade.				
73	River Lagan*	Antrim/Down	UM 382206-2	Granger	73/4			Blade	537	38		Dk brown/black				E: In the bed of the R Lagan below the 1st lock. Mus.: at first, below first lock			
74	Toome*	Antrim	NMI 1935-867		74/4			Hilt & 2/3 blade	424	45	51	Dk brown		02-02-00	Broken hilt. Some bsd				
75	Toome*	Antrim	NMI 1903-14		75/4			Complete	525	44	47	Black, patchy	2-2 4R		2 pcs. Patchy white accretion				Pronounced central midrib. Heavy rivets 4.2mm diameter
76	Toome*	Antrim	NMI W. 10		76/4			Bl & lower hilt	515	45	55	Dk black	2-8		Good casting. Grip outline visible		B: In the River Bann at Toome Bar C19 find.		
77	Toome*	Antrim	NMI W. 4		77/4			Complete	607	42	59	605 Black, patchy		02-02-00	Blade & ricasso worn - no bevel		E: 'In the River Bann at Toome Bar'. B: With other artefacts on the hard bottom	See Bourke refs. No hard evidence for assoc.	
78	nr Toome*	Antrim	UM L4-1932		78/4			Complete	633		48	786 Dk brown		03-06-00	Nicely cast. Modern milling on middle		B: Dredging operations in the 1930s, approx 274m below Toome		Slight hilt strengthening ribs. Some edge damage. Hilt outline. Heavy sword
79	Toome*	Antrim	UM 464/1937		79/4			Complete	560	39	50	530 Shiny dk brown/black	2-2 4R		Too quality casting. Hilt outline visible		Label: 'Toome 1913 no 280'		Old stepped hilt section. Rivets 4.5 mm diam. Point slightly not sharp
80	nr Toome*	Antrim	UM 212-1955		80/4			Bl & shs	185		50	Dk brown			Corroded surface		Label: 'Brought up during dredging between Toome weir and millrace beside 1846'		
81	Somerses*	Antrim/Derry	UM L 25-1936		81/4			Bl & shs	481			Dk brown, patchy	7/2 (+49/7)		Very corroded blade		E: 'In the River Bann at Somerses'		
82	River Bann*	Antrim/Derry	Queen's Univ Belfast		82/4			Complete	457	34	42	378 Black	02-02-00		Blade bent. Nice edge bevelling				
83	River Bann*	Antrim/Derry	UM L 35-1934		83/4			Complete 2	468	52	45	212 Dk brown	02-02-00		Hilt & tang repair. Corroded blade.				
84	River Bann*	Antrim/Derry	UM L 36-1934		84/4			Complete n 2	550	38	45	622 Dk brown	2 (+1)2		Minor edge damage both edges		B: From the R Bann, presumably after dredging		
85	River Bann	Antrim/Derry	UM 103/1951		85/4			Complete	602	35	52	508 Dk brown		03-04-00	Both edges damaged & worn		B: From lower Bann		
86	River Bann*	Antrim/Derry	UM 107/1951		86/4			Complete	602	35	52	508 Dk brown		03-04-00	Both edges damaged & worn		B: Recovered from the Bann		
87	River Bann	Antrim/Derry	Pir Rivers, Farnham		87/4														
88	Upp	Antrim	NMAS DM 42		88/4														
89	Upp	Antrim	NMAS DM 43		89/4														
90	Ballymacarish*	Armagh	NMI W54		90/4			Complete	475	33	42	386 Black	2 (2 (+26)		Bl joint modern ? Sgs edge damage				Area rubbed down alongside blade join
91	Multi-deggen*	Armagh	NMI 1959-172		91/4			Complete	507	31		483 Black			Organic	See notes			
92	Tynan	Armagh		Private	92/4														
93	Upp*	Armagh	Armagh C 178-1935	Tension?	93/4			Complete?	446	30	51	Dk brown		03-02-00	3 pieces. modern join. Pre tang repair				Evans (1881), 296, figs 381-2; Graves (1873), 257; JRSAL 91(1961), 80-4, figs 17 & 18; Weathen (1982), 62
94	Upp*	Armagh	Armagh C 177-1935		94/4			See notes	561	42	53	Dk brown		02-02-00	2 pieces. No mid section.				Damage to up bl edges & wide fits entire bl. Re use found & repaired in modern times?
95	Carlow*	Carlow	BM 47-1-13-1		95/4			Hilt, Sh & upper bl	200		44	Dk brown	2-2 4R		Patchy bsd		E: 'According to the Museum Register this sword was found with many others in the River Barrow near Carlow' On or near Ballin Hill (E) NMI label: Ballin Hill 26-2-28, Col F Beuchamp-Locky	Said to have been found with many swords	
96	Ballin Hill*	Carlow	NMI SA 1928-454		96/4			Bl & shs	376	33	48	Dk brown			2 pieces-damaged edges				
97	Grange*	Carlow	NMI 1930-519		97/4			Blade	247	31					Corroded & twisted				
98	Androw*	Cavan	NMI 1930-127		98/4			Complete	587		32	Patchy black	7-4		Shs damaged. Modern hilt. Worn blade				
99	Ballyconnet*	Cavan	NMI 1929-1520		99/4			Bl, shs & lower hilt	493	26		Black	02-02-00		In 2 pieces				
100	nr Closh Oughter Castle*	Cavan	NMI 1937-3650		100/4			Complete	465	31	41	443 Black	2 (2 (+26b)		Minor edge damage				
101	nr Closh Oughter Castle*	Cavan	NMI 1933-587		101/4			Complete (no hilt)	514	39	52	595 Black, patchy	3 (2 (+26) 1R		Beautiful clean & bright blade				
102	Crossdoney*	Cavan	NMI 1933-5074		102/4			Bl & shs	545	37		Black			Very worn				
103	Kildellan*	Cavan	NMI R1570		103/4			Complete	607	43	51	Dk brown	2 (+1b) 2 (+26b)		Shiny surface, corrosion on hilt				
104	Kilmore Bog*	Cavan	NMI R1688		104/4			Blade	296	43		Black			Twisted				
105	Lisadown	Cavan	NMI P1965-2		105/4														
106	Stanore*	Cavan	NMI 1936-1971		106/4			Complete	483	34	42	396 Patchy dk brown	2 (+1b) 2		Hilt repair. Corr surface. Nice HaC point		E: In the River Erne B: Dredged from L Oughter between beds of Denries Looch & Stanore		
107	Snakee*	Cavan	BM 49-3-1-46		107/4			Complete	581	38	47	582 Patchy dk brown	2-2 1R 5 diam		Dashed hilt edges. Well cast				
108	Trinity Island*	Cavan	NMI 1937-2852		108/4			Blade	334	32		Green & brown patches			Bent				
109	nr Thornhill, Killiney	Cavan	Ashm 1927-2888		109/4														
110	Upp*	Cavan	NMI W64		110/4			Complete	482	39	45	Black		02-04-00	Bl cleaned. Edges show (see r notes)				
111	Urrley*	Cavan	NMI 1963-29		111/4			Bl & shs	537	40	50	Green		7-2	Both edges damaged				
112	Boobylen*	Clare	NMI 1931-235		112/4			Tang	69			Khaki	2-7		Hollow at base, broken cast on				
113	Killakee*	Clare	NMI 1934-72		113/4			Complete	49	35	42	510 Khaki	01-04-00		On the bed of the River Shannon about 50m downstream of the Canal Head at Killakee				
114	Knocknallappa*	Clare	NMI 1936-1974		114/4			Complete	409	28	24	234 Green, blotchy	02-02-00		Join/crack nr tip. Crack on hilt				
115	Knocknallappa*	Cork	NMI 1934-11921		115/4			Complete	630	45	52	766 Green	3 (4 (+26b)		Sh damaged. Cleaned at blade join				
116	nr Cork*	Cork	BM 49-3-1-46		116/4			Bl & lower hilt	560	31		Dk brown							
117	nr Cork*	Cork	NMI W28		117/4			Complete (2 pcs)	477	32	44	Dk brown		02-02-00	Bl corroded & worn. No bevel visible				
118	Kilnakee*	Cork	NMI E92-409		118/4			Blade lat	141			Green			Rough ended shs and upper blade				
119	Meadstown*	Cork	UM 465-1937	Day	119/4			Bl & shs	473	36	49	Green bl/dk brown hilt	7-6 6R		Corroded bl & accretion on hilt				
120	Torren More West*	Cork	NMI 1932-4		120/4			Bl & shs	494	35		Dk brown			Badly corroded				
121	Upp	Cork		Day	121/4														
122	Upp	Cork		Day	122/4														
123	Agavey*	Derry	NMI E92-403	Chapman (?)	123/4			Bl & lower hilt	526	39	49	Dk brown		7	Hilt repair obliterated details				
124	nr Coleraine*	Derry	UM L15-1939		124/4			Bl & shs 2 pcs	578	44	52	Dk brown		7-6 2R	Worn edges & corroded blade				
125	Camptey Lower	Derry			125/4														
126	nr Portlough*	Derry	NMI 1929-1534		126/4			Upp bl & shs	234						Shs worn				
127	Upp	Derry	Ashm 1927-2893		127/4														
128	Upp	Derry			128/4														
129	Ardrum*	Donegal	NMI 1900-46	Knowles	129/4			Bl & lower hilt	535	46	53	Dk brown	7-8		Edges damaged both edges				
130	Ards Beg*	Donegal	NMI 1935-430		130/4			Complete	581	39	51	518 Dk brown	02-02-00		Beautifully cast. Minor corrosion on bl				
131	Buncrana*	Donegal	NMI 1968-230	Ex Salisbury B521	131/4			Complete	537	39	51	607 Black			Good. Edge damage both sides				
132	Buncrana*	Donegal	NMI 1968-231	Ex Salisbury B709	132/4			Complete	625	46	53	726 Black, cleaned			Good. Blade nick, modern hilt notches				
133	Burn Castle*	Donegal	UM 351-1924		133/4			Hilt & upper bl	274		45	Dk brown		3 (2 (+26)	Worn blade				
134	Carran*	Donegal	NMI 1958-71		134/4			Bl & shs & 1 hilt	565	40		405 Green	Damaged		Corroded				
135	Carran*	Donegal	NMI 1958-72		135/4			Bl & shs & 1 hilt	576	41		435 Bright green	Damaged		Corroded				
136	Inshowen*	Donegal	UM 4924 (B.66)	Granger	136/4			Complete	600	82	51	636 Dk brown	03-04-00		Bl joint looks modern but OK				
137	Lackagh*	Donegal	NMI 1941-331		137/4			Bl & lower hilt	536	39	52	Black	01-02-00		Corroded & hilt repair				
138	Leterkeny*	Donegal	NMI 1880-25		138/4			Lower bl & shs	127			Dk brown			Very worn & corroded				

Table1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
139	Moolagh*	Donegal	NMI 1900-46	139/4				Blade	466	34			Dk brown			Old label on sw: 'Found in 1892 by James Boyle, a peasant farmer, in a bog near his cottage in Moolagh, Ardara, Co Donegal'			
140	Ulna*	Donegal	NMI 1969-223	140/4				Complete	487	35	50	453	Black	3.4(+26b)	Edge & shs badly damaged. Corroded				
141	Ballycroghan*	Down	Banor -	141/4				Complete	628	47	53	804	Khaki	21a 16b12(+16b)	Spines soldered together. Blade worn			2 other swords (E142 & E143)	
142	Ballycroghan*	Down	Banor -	142/4				Complete	627	40	51	816	Khaki	36b 66b	Unrimmed & unfinished casting			2 other swords (E141 & E143)	Joze (1953)
143	Ballycroghan*	Down	Banor -	143/4				Bi & hilt (no tang)	623	43	51	682	Khaki	74b1	Porous casting. Some br disease			2 other swords (E141 & E142)	Slightly bent.
144	Barbridge*	Down	BM WG 1230	144/4				Complete	600	49	49	576	Dk brown, patchy	02-02-00	Modern iron? Hilt repair & cracks on edge				
145	Ulna*		NMI 1876/75	145/4				Bi fgt	340	42			Dk brown		Nice blade in good condition				Some br d. Down at Downpatrick. BM loan
146	Kilose*	Down	UM 489-1937	146/4				Bi & shs	540	39			Dk brown	7-4	Worn & modern upper bl mode			IDENTICAL TO E63 (UM 476-1937) Likely to be from the same mould in LDA - see drawing notes	
147	nr Strabo*	Down	UM 466-37	147/4				Bi & shs	568	36			Shiny dk brown		Minor edge damage. Modern lacquer?				
148	Ketterick Island*	Down	NMI 581-1934	148/4				Tana missing	546	37	46	554	Dk brown, patchy	02-02-00	Small edge ricks. Hilt repair? Raised hilt outline				
149	Stewenagary*	Down	NMI 1916-23	149/4				Tip, sh & term incom	587	42			Dk khaki	1-67	Rough surface, corroded				
150	Ulna*	Down?	UM 1911-38	150/4				Complete	607	46	62		Dk brown	02-04-00	Well cast. Corroded & rough surface				
151	Obanar*	Dublin	Pitt Rivers Farnham 1	151/4															
152	Boa Island	Fermanagh	Ash 1927-2915	152/4															
153	Drumcraige*	Fermanagh	NMI 1878-27	153/4				Bi & lower hilt	578	39	46		Black, green corrosion	7-2	Corroded & hilt repair				
154	Nr Enniskillen*	Fermanagh	NMD Qk VII J59	154/4				Bi to 2 pds	438	37			Dk brown					1.64 written on sword. Label reads: 'Near Enniskillen 1874'	
155	Nr Enniskillen*	Fermanagh	NMI 1900-44	155/4				Complete	640	46	56	888	Patchy black	02-04-00	Good shiny surface. Heavy hilt				
156	Nr Enniskillen NOT IN MUSEUM	Fermanagh	Lim (City) 126	156/4															
157	Lough Erne	Fermanagh		157/4															E states sw on private possn, on loan to Herts Co Museum. St Albans
158	Lough Erne*	Fermanagh	UM 470-1937	158/4				Bi & shs in 4 pcs	492	36			Dk green, shiny	1R	Modern ions, but looks OK				
159	Lough Erne NOT IN MUSEUM	Fermanagh	Lim (City) 127	159/4															
160	Lough Erne*	Fermanagh	Dundak 1998-985	160/4				Complete (no tang)	542	40	47	692	Dk brown	2.2(+26b)	Heavy casting. Good wide bevel				
161	Lough Erne	Fermanagh		161/4															
162	Inishleague Island*	Fermanagh	UM 506-1935	162/4				Bi shs & hilt	532	38	53		Dk brown	02-02-00	Corroded edges with minor damage				
163	Inishleague Island*	Fermanagh	UM 505-1935	163/4				Complete	548	35	50	528	Dk brown	02-02-00	Rough blade surface				
164	Maquers Bridge*	Fermanagh	NMI 1873-2	164/4				Bi & lower hilt	551	37	50		Dk brown	7-4	Blade polished				
165	Portora*	Fermanagh	UM A187-1913	165/4				Complete	444	30	47	428	Dk brown	03-04-00	Good casting. Minor damage both edges				
166	Portora*	Fermanagh	UM 479-1937	166/4				Hilt & upper bl	205		41		Dk br/bwn	02-02-00	Tana repair				
167	Tempoo*	Fermanagh	NMI 1912-56	167/4				Complete	621	44	51	595	Black patchy - more on	02-06-00	Beautiful blade. Good hilt repair				
168	Tempoo*	Fermanagh	NMI 1912-57	168/4				Complete	648	45	53	834	Black patchy - more on	2(+16b)2(+26b)	Minor edge damage. Nice weapon				
169	Clonbrock Domesne	Galway		169/4															
170	Aughranore	Galway		170/4															
171	Brooklodge*	Galway	NMI W76	171/4				Bi for	98				Dk brown						
172	Brooklodge*	Galway	NMI W86	172/4				Bi for	184	40			Patchy black, cleaned		Edges damaged. Modern hole in				
173	Bullaun*	Galway	NMI 1931-205	173/4				Complete	556	42	49	576	Dk brown, patchy	03-04-00	2 pieces				
174	Canemore*	Galway	NMI P1954-26	174/4				Complete	510	35	44	428	Black & clean bronze						
175	Derrvobber East*	Galway	NMI P1952-12	175/4				Bi & bottom hilt	532	38	49		Green, see notes						
176	Inchagall*	Galway	NMI SA 1899-68	176/4				Complete	615	45	54	983	Dk brown	3.67 2R	Brownish accretion. IRON SWORD?				
177	Keelogue Fort*	Galway	NMI W18	177/4				Complete	510	39	47	515	Black, patchy	2(+12					
178	Keelogue*	Galway	NMI W46	178/4				Complete	492	37	47	475	Black, patchy	03-04-00	Minor corrosion, blade worn				
179	Keelogue Fort*	Galway	NMI W47	179/4				Complete	507	39	46	507	Black/dark brown	03-02-00	Cast on hilt				
180	Meelick*	Galway	BM 64.7-14.281	180/4				Complete	544	39	45	544	Dk brown, patchy	7 (hilt repair)	Cast on hilt				
181	Sneag East*	Galway	NMI 1960-671	181/4				Bi & hilt fgs	30	42			Dk brown	03-02-00	Worn				
182	Bethgar*	Galway	NMI 1903-234	182/4				Complete	466	37	43	438	Cleaned, patchy black	03-02-00	Very worn surface & hilt				
183	Ulna*	Gloucestershire	Bradton	183/4															
184	Aghador*	Kerry	BM Unreg	184/4				Complete	638	44	51	762	Dk brown, patchy		Well cast with smooth surface				
185	Aughrim*	Kerry	NMI 1934-5644	185/4				Pt bl missing	0	36	42		Dk brown, patchy	1(26b)1(26b)	Piece missing				
186	Valencia Island*	Kerry	NMI 1893-40	186/4				Complete	625	42	49	698	Dk brown, patchy	3.4(+26b)	Rough surface & sharp edges				
187	Ulna*	Kerry	NMI X2834(see	187/4				Blade	497	41			Black		Blade etched				
188	Killybeg*	Kildare	NMI W7	188/4				Bi & sh	520	35			Dk brown		Cast across sh appears modern				
189	Barrowford*	Kildare	NMI 1928-699	189/4				Bi & shs	450	33	42		Black, patchy						
190	Kilkea*	Kildare	NMI 1945-305	190/4				Complete(?)	450	34	43	418	Black	01-02-00	2 pieces. Hilt repair. Corroded				
191	Ulna*	Kildare	BM 76.12-14.13	191/4				Complete (no tang)	485	34	40	460	Dk khaki	01-04-00	Hilt repair				
192	Kildinagh Fort*	Laois	NMI W5	192/4				Complete	599	42	51	607	Black	2(+26b)2(+46b)	Tana broken				
193	Kildinagh Fort*	Laois	NMI W48	193/4				Complete	458	33	43	348	Black	03-02-00	Hilt repair				
194	Kildinagh Fort*	Laois	NMI W49	194/4				Complete	460	31	42	358	Black	02-02-00	Minor edge damage				
195	Kildinagh Fort*	Laois	NMI W50	195/4				Complete	490	36	44	505	Black	1(+16b)4	Hilt repair. Sls edge damage				
196	Lea*	Laois	NMI 1900-529	196/4				Complete	487	33	47	437	Dk green	02-02-00	Damaged & repaired				
197	O'More's Forest*	Laois	NMI 1916-4	197/4				Hilt & upper bl: Blade	32	46			Black	02-02-00	Ftgs prob belong together. Hilt repairs				
198	Ulna*	Laois?	NMI 1936-1647	198/4				Complete	480	38	44	487	Dk brown	3.2 1R	Good				
199	Ballyduff*	Leitrim	NMI W52	199/4				Complete	463	31	41	416	Black	2.2 (+26b)	Good hilt repair				
200	Canaboo*	Leitrim	NMI 1959-174	200/4				Complete	440	30	42	251	Black	01-02-00	Good				
201	Carrick on Shannon*	Leitrim	NMI W19	201/4				Complete	519	37	47	511	Black	02-02-00	Clean & sharp blade. Minor damage				
202	Carrick on Shannon*	Leitrim	NMI 1933-248	202/4				Complete	518	35	47	500	Black, cleaned						
203	Chocumbur*	Leitrim	NMI W29	203/4				Bi & shs	395				Black, patchy						
204	Derrinabeg*	Leitrim	NMI 1937-6	204/4				Complete	540	38	50	611	Black	1.2 (+26b)3 (+16b)	Good. Slight edge damage				

Table1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
																E Found in Rathsherry Bog by Robert Maxwell 1798 Hidden in the thatch (?) on old label		Site Catalogue of the Knowles Collection (1924), lot 653, pl 4 BACC	
206	206	Rathsherry	Antrim	NMI 11936.1	Knowles	205/4													
207	208	Ulin	Limerick	NMI 1959-232	Letim	208/4													
208	207	Knockklong	Limerick	PR Oxford 2628-1904		207/4													
209	208	Lough Gur	Limerick	NMI 1969-232	Ex Salisbury B566	208/4													
210	209	re Shanagolden	Limerick	NMI 1929-1715		209/4													
211	210	R Shannon	Limerick	NMI W13		210/4													
212	211	Ulin	Limerick	NMI W71		211/4													
213	212	re Ballymahon	Londonderry	NMI 1937-2574		212													
214	213	Killyshee	Londonderry	BM W/G 1231		213/4													
215	214	Drogheda	Louth	BM 55.12.20.20		214/4													
216	215	Ballina	Mayo	PR Farnham		215/4													
217	216	Ballina	Mayo	PR Farnham		216/4													
218	217	Ballina	Mayo	PR Farnham		217/4													
219	218	Ballycaris	Mayo	BACC	White-Kno	218/4													
220	219	Ballycoris	Mayo	NMI 1944-239		219/4													
221	220	Cloughery	Mayo	NMI 1950-67		220/4													
222	221	Hog Island	Mayo	NMI 1983-37		221/4													
223	222	Killalea	Mayo	NMI W51		222/4													
224	223	Newport	Mayo	BM 1964.12.6.8		223/4													
225	224	Porter	Mayo	NMI 1939-2		224/4													
226	225	Westport	Mayo	Salford		225/4													
227	226	Ulin	Mayo	NMI W30	Wilde	226/4													
228	227	Ulin	Mayo	NMI 1959-625		227/4													
229	228	Addinstown	Meath	NMI P1951-121		228/4													
230	229	Balsham	Meath	NMI 1931-307		229/4													
231	230	Ulin	Meath	NMI 1932-401	Chapman	230/4													
232	231	Caraghmore	Monaghan	NMI 1956-287		231/4													
233	232	Lisduff	Monaghan	NMI 1959-173		232/4													
234	233	Ballykileen	Offaly	Camb MC99.186	Murray	233/4													
235	234	Crookstown	Offaly	NMI 1933-761		234/4													
236	235	Birr	Offaly	BM 83.2-18.16		235/4													
237	236	Downis	Offaly	BM 54.7-14.282		236/4													
238	237	Downis	Offaly	BM 54.7-14.283		237/4													
239	238	Downis	Offaly	BM 54.7-14.284		238/4													
240	239	Downis	Offaly	BM 54.7-14.286		239/4													
241	240	Balsham	Offaly	NMI 1935-168		240/4													
242	241	Ulin	Offaly	NMI 1962-123		241/4													
243	242	Ulin	Offaly	NMI 1962-124		242/4													
244	243	Andowne	Roscommon	NMI W58	Wilde	243													
245	244	near Athlone	Roscommon	BM 63.1-22.116		244/4													
246	245	re Boyle	Roscommon	Birmingham 1967A148	Barnett														
247	246	Carho	Roscommon	NMI 1934-6048		246/4													
248	247	Clonardagh	Roscommon	NMI 1931-319		247/4													
249	248	Kilbride Shaw	Roscommon	NMI W69		248/4													
250	249	Knockadon	Roscommon	NMI W22	Wilde	249/4													
251	250	Knockadon	Roscommon	NMI W86	Wilde	250/4													
252	251	Nadavewash	Roscommon	NMI 1933-6		251/4													
253	252	Inch Island	Sligo	NMI E200-681		252/4													
254	253	Fortland	Sligo	Leeds D1964.0275		253/4													
255	254	Rathcarrick	Sligo	NMI 1959-182		254/4													
256	255	Clonmel	Tipperary	BM OA 125		255/4													
257	256	Clonmel	Tipperary	NMI 1934-680		256/4													
258	257	Derrhogan	Tipperary	NMI 1957-120		257/4													
259	258	Derrhogan	Tipperary	NMI 1957-121		258/4													
260	259	Latteragh	Tipperary	NMI R2008		259/4													
261	260	Latteragh	Tipperary	NMI R2009		260/4													
262	261	Latteragh	Tipperary	NMI R2010		261/4													
263	262	Alamudhar	Tipperary	BM W/G1228		262/4													
264	263	Camlet	Tipperary	BM W/G1228		263/4													
265	264	Cockstown	Tipperary	BM W/G1234		264/4													
266	265	near Edemagh	Tipperary	BM 43.12.26.1		265/4													
267	266	Farmish	Farm/Tipperary	UM 859-1926		266													

Table 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
260	267	Relagh*	Tyrone	NMI 1938-35		267		Complete	625	44	48	786	Black, patchy	02-04-00	Minor edge damage	E: 'In Relagh bog, possibly with nos 268 and 269'	2 swords, nos 268 and 269	Eogan (1983), Hoard no. 141	
270	268	Relagh*	Tyrone	NMI 1938-36		268		Complete	619	47	52	825	Black	3/4 (+28b) 3R	Beautiful blade - only a couple of nicks	E: 'In Relagh bog, possibly with nos 267 and 269'	2 swords, nos 267 and 269	Eogan (1983), Hoard no. 141	
272	269	Relagh*	Tyrone	NMI 1938-37	269/4			Complete	628	44	55	876	Black, patchy	2/2 (+26a)	V wood. Sharp edges. Hit v rough.	E: 'In Relagh bog, possibly with nos 267 and 268'	2 swords, nos 267 and 268	Eogan (1983), Hoard no. 141	Blade slightly twisted.
272	270	Knockmason*	Wexford	NMI P1948-151	270/4			Blade lost	292	36			Black		Corroded surface	E: 'Found in the River Shannon'	1 spht; 2 SA; 2 targeted chisels; 1 SG; 2 SK	Power (1898), Eogan (1983) no.144	
272	271	near Athlone	Westmeath	PR Colford 1486-2624															
272	272	Ballyhealy*	Westmeath	NMI 1938-136				Complete	458	35	44	421	Dk brown	02-02-00	Minor edge damage both edges	Label: Ballyhealy or Ballinure... 25.11.38 James Bryn			
272	273	Bishostown*	Westmeath	UM 472-1937	273			Bl & shs	432	33	48		Brown		Damaged hit, v corroded blade	E: Label: 'Found in path at Bishostown, Co Westmeath'			
272	274	Bracklin*	Westmeath	NMI 1959-31	274/4			Blade	359	39			Black		Scratched				Scratched. Mechanical damage from turf cutter?
272	275	Carrockbrean*	Westmeath	NMI P1948-85	275/4			Bl, shs & lower hilt	436	26			Black	7	3 pieces, joined together. Hit repair				Blade wavy and twisted. Cast on hit repair.
272	276	Braddestown*	Dublin	NMI R1234	276/4			Bl (no tip) & hilt	594	35	53		Khaki	2/4 IR	3 pieces, broken. Edge damage				
272	277	Ladestown*	Westmeath	NMI 1881-181	277/4			Complete	416	33	40	359	Black	02-02-00	Good	NMI label: 'Taken out of Lough Ennell near Ladies (sic) Town, by a farmer spearing eels'			
272	278	Ung*	Westmeath	NMI R2-833	278			Complete	470	39	44		Green	3/2 (+26b)	3 pieces soldered together. Tang repair				
272	279	Ung*	Westmeath	NMI S2222	279/4			Bl & lower hilt	578	30	46		Black	7-8	2 pieces, soldered together				Why is the upper hilt missing?
272	280	Ung*	Almwick Castle 389	Walker?	280			Complete 3 pcs	542	41	46	550	Dk khaki	2/2 (+26b)	Hilt of visible				Slightly concave hit flanges
272	281	Ung*	Almwick Castle 390	Walker?	281			Bl & lower hilt	474	34	46		Dk brown	7/8	Slight hilt ovl. Modern blade join.				
272	282	Ung*	Almwick Castle 392	Walker?	282			Tang & tip missing	452	25	42		Dk brown	02-02-00	Worn & damaged. Hit repair.				Bl join looks modern, but hilt casting genuine.
272	283	Ung*	Almwick Castle 393	Walker?	283			3 pcs, poss 2 screws	495	38	43		Dk brown	2x16b) 2x14b) 2R	Good hilt with stub oval. See res notes				Lower to profile wrong. Join modern. Upper bl & hit OK.
272	284	Ung*	Armagh PL 110	Beresford	284			Complete	579	39	23	578	Dk brown/ khaki	2x16b) 1x14b)	Twisted tang. Edge damage. Worn bl.				Odd. Hit blanks indicate non-use, edge damage suggests use. Note edge damage.
272	285	Ung*	Armagh PL 133	Beresford	285			Complete	500	39	47	614	Black	02-02-00	Smooth surface. Possibly a copy.				Possibly a copy as no hit outline. Heavy for the size.
272	286	Ung*	Armagh PL 138	Beresford	286			Complete	450	38	47	460	Cleaned. Some black	2x16b) 2x12b)	Fine condition. Tang metal				
272	287	Ung*	Armagh PL 134	Beresford	287			Complete	597	37	49	610	Khaki, cleaned	02-02-00	Hit repaired twice. Hit outline visible.				
272	288	Ung*	Armagh PL 139	Beresford	288			Hilt & upper bl	213		53		Dk brown	2 (+16b) 29b-16b)	Some br d				Similar in section & condition to E291 & E288. Can only possibly be E288.
272	289	Ung*	Armagh PL 111	Beresford	289			Bl hit	162	41			Dk brown		Some br d				Similar in section & condition to E291 & E288. Can only possibly be E288.
272	290	Ung*	Armagh PL 237	Beresford	290			Hilt & Blade	378		49		Dk brown	02-02-00	Partial hilt outline visible. Thick hit.				Dished hit edges.
272	291	Ung*	Armagh PL 112	Beresford	291			Bl hit	100				Dk brown		Some br d				Similar in section and condition to E288 & E289, but does not and can not fit.
272	292	Ung* NOT IN MUSEUM	NOT IN ARMAGH PL																
272	293	Ung*	Armagh C 2p-1955	Beresford	293			Lower bl hit	143				Black, patchy						Marcus Gervais Beresford Colln
272	294	Ung*	Armagh C 30-1955	Beresford (M)	242			Hilt & upper bl	241		51		Brown	03-04-00	Edges damaged both sides				Bought from Mrs Rice of Reading. Note in Cat states ex Marcus Beresford Colln
272	295	Ung*	Armagh C 175-1935		295			Bl hit	161		26		Brown		Blunt, worn edges				Westhorne (1978), 38
272	296	Ung*	UM 1510A		296			3 pieces	426	28	48	354	Dark brown	02-02-00	3 pieces which don't fit				Westhorne (1978), 38
272	297	Ung*	UM 1510B		297			Complete	441	33	45	480	Dk brown	2x16b) 2x12b)	Heavy & crude edges				Westhorne (1978), 62
272	300	Ung*	UM 1510C		298			4 pieces	431	33	39		Dk brown		4 pcs. Corroded bl, porous surface				Genuine piece which don't fit. Bevels wider on bottom two sections.
272	299	Ung*	UM 6-64		299			Blade	482	43	49		Dk brown		Good cast. Modern handle				Looks OK, but a bit heavy. Ricasso looks a bit off. May be a copy.
272	300	Ung*	UM 3884 (8-9)	Granger	300			Blade lost	352	40			Dk brown		Very worn and damaged				Looks OK as complete sword but joins are modern.
272	301	Ung*	UM 3890 (8-10)	Granger	301			Blade lost	333	30			Dk brown/green		Very worn and damaged				Hilt has been altered to take modern handle.
272	303	bl the Shannon*	?	UM 1911-37	BNHPS	303		Complete	527	29	46	470	Dk brown, almost black	3/4 (+26b)	Hilt outline on one side only.				Hilt repair? Note strange lobed hilt section.
272	304	Ung*	UM 1911-38	BNHPS	304			Bl, shs & lower hilt	594	48	46		Dk brown on hilt		Blade partially cleaned				Nice wide and well marked edge bevels. Thick hit cross section. Bl repair?
272	305	Ung*	UM 1911-133C	BNHPS/Denamore	305			Hilt & upper blade	205		47		Dk brown	02-02-00	Well cast, good detail. Patchy lost				
272	306	Ung*	UM 1911-133D	BNHPS/Denamore	306			Upper bl & shs	263				Dk brown		Shoulder & edge damage. Corroded				
272	307	Ung*	UM 1911-133B	BNHPS/Denamore	307			Blade & shs	528	38	55		Dk brown	7/4	Corroded surface.				
272	308	Ung*	UM 1911-133E	BNHPS/Denamore	308			Bl hit	105				Dk brown		Corroded & repaired worn hit				Hilt outline visible
272	309	Ung*	UM 1911-133F	BNHPS/Denamore	309			Blade lost	216	33			Black, patchy		Corroded edges				
272	310	Ung*	UM 1911-133G	BNHPS/Denamore	310			Blade lost	250	34			Dk brown		Badly damaged edges				
272	311	Ung*	UM 1911-166B	BNHPS/Bern	311			Bl & shs, 2 pieces	586	37	47		Dk brown	7/4	Modern soldered join. Worn blade				
272	312	Ung*	UM 1911-166A	BNHPS/Bern	312/4														
272	313	Ung*	UM 1911-166C	BNHPS/Bern	313			Blush hit	376				Khaki		Corroded and rough surface				
272	314	Ung*	UM 1911-166D	BNHPS/Bern	314			Blade & shs	466	37	49		Dk brown	7/2	Worn blade & shs				Remains of solder at join indicates modern join
272	315	Ung*	UM 1911-166E	BNHPS/Bern	315			Bl & shs, 2 pieces	395	31			Dk green		Corroded surface, cleaned				
272	316	Ung*	UM 1911-170		316/4														E has acc no UM 152-1906. Renumbered by UM. Originally mv no. 945
272	317	Ung*	UM 102-06E	Claverly				Hilt & upper bl	276		48		Dk brown	06-05-00	Rough casting but looks oen.				
272	318	Ung*	UM 104-1906		318/4														
272	319	Ung*	UM 476-1937		319			Complete, 2 pieces	595	30	44	442	Dk brown	3/3 (+16b)	2 pieces. Sig edge damage				Nice sword, well finished. Good example of its type. Dished flanges.
272	320	Ung*	UM 468-1937	Buick	320			Blade & lower hilt	495	34	48		Dk brown	02-02-00	Minor edge damage both edges				Buick Collection no.294 on label
272	321	Ung*	UM 471-1937A		321			Complete	474	35	43	484	Dk brown	2/2 (+26b)	Paint hit bl visible				
272	322	Ung*	UM 473-1937	Johnston?	322			Bl & shs	484	37	45		Dk brown		Damaged hilt & v worn blade.				
272	323	Ung*	UM 475-1937B	Fetherston	323			Blade	510	40			Dk brown		Modern hit, minor edge damage				Looks genuine-shame that the hilt was butchered.
272	324	Ung*	UM 195-1951B		324			Bl hit	284				Dk green		Very corroded edges				
272	325	Ung*	UM 195-1951A		325			Sh hit	92		52		Dk brown	7/4	Hilt metal				
272	326	Ung*	UM 101-1950B		326			For bl & hilt	446	34	49		Dk brown	03-06-00	Edges worn. Dished hit flanges				
272	327	Ung*	UM 210-1955					Hilt & upper blade	174		45		Dk brown, cleaned	02-02-00	Modern bl alteration. Castings far gone.				Blade section very flat suggesting copy, but edge & ricasso detail good.
272	328	Ung*	UM 211-1955		328/4														
272	329	Ung*	Bristol E175		329/4														
272	330	Ung*	Bristol E177		330/4														
272	331	Ung*	Bristol 7.963		331/4														
272	332	Ung*	Camb MC99-187		332/4			Complete, 2 pcs	421	38	37	296	Green, some brd on hit	02-02-00	Rough casting. Pronounced midrib				
272	333	Ung*	Camb MC99-188		333/4			Hilt & upper bl	261	43			Dk brown	03-06-00	Shiny surface, slightly pitted & scratched				Thick hit section
272	334	Ung*	Camb MC99-189		334/4			Bl & shs	450	38			Khaki	7/2	Shs & bl corroded & damaged. Evtl				
272	335	Ung*	Camb MC99-190		335/4			Shs, upper bl	121		43		Khaki		Rough surface				
272	336	Ung*	Camb MC99-191		336/4			Hilt hit	84		45		Dk khaki	7/2 (+48b)	Minor corrosion				
272	337	Ung*	Camb MC99-192		337/4			Bl hit	100				Khaki		Rough surface				
272	338	Ung*	Camb FB239-PB148		338/4			Complete	585	38	48		Dk brown	02-04-00	Some brd on bl				Heavy hit
272	340	Ung*	NMD L128		338			Complete in 2 pcs	404	35	47	485	Dk brown	2 (+26b) 2	Heavy thick hilt, could be copy.				Mus Cat has old no as J11/10495
272	341	Ung*	NMD OA-VII J4		340			Bl hit	252	36			Dk brown, patchy		Edges flattened or top of bl, appears modern				1300E written on blade. Mus Cat shows acquired in 1983, no other info.
272	342	Ung*	NMD OA-VI 5		341			Bl hit	173				Dk brown		Edges flattened or top of bl, appears modern				No acc no in E.3 Cat.
272	343	Ung*	Cork L188-60		342/4														
272	344	Ung*	Cork L188-61		343/4														
272	345	Ung*	Cork L188-62		344/4			Hilt & upper bl	199		46		Dk khaki	03-02-00	Cast on hit repair				Old acc no L188-62
272	346	Ung*	Cork L188-65		345/4			Bl hit	252	15			Dk khaki						Old acc no L188-64
272	347	Ung*	Cork L188-66		346/4														
272	348	Ung*	Cork L188-67		347/4														
272	349	Ung*	Cork L188-68		348/4			Upper bl & shs	148		44		Khaki		Pick marked surface				Old acc no L188-71
272	350	Ung*	Cork L188-69		349/4			Complete, 2 pcs	476										Old acc no L188-74
272	351	Ung*	Cork L188-115		350														

Tabelle 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
366	Beland*			NMI W26		366		Bl/Hilt & upper	Bl	482	32	40	Black		03-06-00	Hilt repair. Very corroded			2 diff weapons? Patina is similar however	
367	Beland*			NMI W27	Wide	367/4		Bl & lower hilt	Bl	554	30	43	FAKE							
368	Beland*			NMI W53		368/4														
369	Beland			NMI W45	Wide	369/4														
370	Beland*			NMI W57		370/4		Bl & lower hilt	495	36	43	452	Cleaned	02-04-00	Worn. Porous surface		Wildcat Cat. 443 Fo 316		Pockmarked surface	
371	Beland*			NMI W60	Wide	371/4		Bl & lower hilt	434	34	46		Cleaned	02-02-00	Hilt repair. 2 pieces				2 pieces joined poorly together do appear to be from the same sword	
372	Beland*			NMI W74	Wide	372		Bl	51	33		Black								
373	Beland*			NMI W76	Wide	373/4		Bl & upper hilt	168			Dark brown								
374	Beland*			NMI W78	Wide	374/4		Hilt & lower hilt	172		46	Dark khaki								
375	Beland*			NMI W81	Wide	375/4														
376	Beland*			NMI W82	Wide	376/4		Upper br & hilt	157											
377	Beland*			NMI W83	Wide	377/4		Bl	234	27		Dark khaki								
378	Beland*			NMI W88	Wide	378/4		Bl & shs	390			Black		7-2	Very corroded				Soldered together but patina suggests they belong to the same sword	
379	Beland*			NMI W91		379/4		Complete (no top)	438			Black			Badly corroded				2 pieces soldered together. Hilt repaired.	
380	Beland*			NMI W93		380/4		Complete (no top)	459	36	42	432	Black	02-02-00	Sin edge damage to both edges				Rivet diam 3mm. 2 out of 3 are stub rivets.	
381	Beland*			NMI X5		381/4		FAKE												
382	Beland*			NMI SA1913.86	O'Meara Park, Co. Lk	382/4		Upper br & hilt	180		45	Dark brown								
383	Beland*			NMI SA1913.88	O'Meara Park, Co. Lk	383/4		Bl	182			Dark brown								
384	Beland*			NMI X7		384/4		Upper br & shs	158		52	Dark brown		02-02-00	Vertical sh. holes via. Pore a reline					
385	Beland*			NMI 1875.115		385/4		Blade	160	31		Dark khaki			Edge damage both sides					
386	Beland*			NMI 1877.56		386/4		FAKE	380											
387	Beland*			NMI 1880.24		387/4		Complete	637	41	48	876	Black	2(+1bl) 2(+2bl)	Heavy cast hilt. Worn bl edges					
388	Beland*			NMI 1882.184		388/4		Bl & lower hilt	452		42	408	Black	2(+1)					Significant edge damage	
389	Beland*			NMI 1882.185		389/4		Bl	214	33		Black								
390	Beland*			NMI 1882.186		390/4		Bl	82			Black			Corroded edges & bud				Does not fit 1886a (E891)	
391	Beland*			NMI 1882.188		391		Bl	71			Black			Corroded edges					
392	Beland*			NMI 1886.87		392/4		Complete	476	33		431	Black	03-02-00	1 sh damaged & sin edge damage				Blade corroded & bevels barely visible. Edge damage extensive	
393	Beland*			NMI 1890.24		393/4		Blade	193			Dark khaki			Wide blade, some bud					
394	Beland*			NMI 1893.2		394/4		Bl & shs	377	32	42	Black		7-4						
395	Beland*			NMI 1896.6		395		Complete (no top)	495	37	42	525	Black	3-4.1R	2 pieces, modern join				Is this part of the Downcast?	
396	Beland*			NMI 1897.173		396/4		Blade	225	35		Black								
397	Beland*			NMI 1906.226		397/4		FAKE											Nice H&C point	
398	Beland*			NMI 1906.226		398/4		Blade	271	34		Dark khaki								
399	Beland*			NMI 1906.227		399/4		Blade	247	29		Khaki								
400	Beland*			NMI 1906.228		400/4		Upper br & hilt	131		38	Dark brown		7-2	Hilt repair. Large rivet holes					
401	Beland*			NMI 1918.1		401/4		Blade	200	32		Dark brown								
402	Beland*			NMI 1885.115		402/4		Shs & upper br	142			Khaki			Damaged edges & rough surface					
403	Drumcample?*	Fermanagh		NMI 1947.9		403/4		Complete	508	39	48	596	Black	02-04-00	Minor edge damage. Good hilt ribs				2 sws E403 & E153	
404	Drumcample?*	Fermanagh		NMI 1947.9		404/4		Complete	508	39	48	596	Black	2(+1bl) 2	Worn blade. minor edge damage				2 sws E403 & E153	
405	Beland*			NMI 1957.145		405/4		Bl & shs	207		49			07-12						
406	Beland*			NMI 1959.169		406/4		Blade	190	34										
407	Beland*			NMI 1959.175	Dr Leeper, Dublin	407/4		Complete, top broken	470	39	49	521	Black	2(+2bl) 2(+1bl)	Very good, but heavy. Genuine?				This sword was formerly in the collection of Dr Leeper, Dublin/ NMI card index.	
408	Beland*			NMI 1959.623		408/4		Hilt & upper br	270	42		Black		2(+1bl) 4	Hilt repaired				Hilt repaired. appears to be reused from other weapon. Edges slightly dished.	
409	Beland*			NMI 1959.624		409/4		Part tang & blade												
410	Beland*			NMI X8		410/4		Bl	131		46	Black, patchy green			3 pieces, bent, soldered					
411	Beland*			NMI X9		411/4		Complete	626	47	50	398	Brown	3.6 (+2) 2R	Machined hilt. Poss a replica					
412	Downhill	Galway		NMI	Glenon	412/4		Complete (no top)	459	26		Khaki		03-04-00	2 pcs. Modern br join. Rough surface				Ex Glenon Mus. Thornhill, Dumfriesshire	
413	Beland*			NMI X11		413/4		Bl & damaged hilt	494	32	41	Dark brown			2 pcs. Hilt broken. Can ribbe elements					
414	Beland*			NMI X12		414/4		Bl (no top) & lower hilt	436	28	42	Mottled green/brown		1.4 (+2bl)	Bl 2 pcs. Copy? Hilt repair looks cast on					
415	Beland*			NMI X13		415/4		Bl	86			Dark khaki								
416	Beland*			NMI 1981.183		416/4		Bl	236	27		Black			Flattened oval to blade. C19 mod?					
418	Beland*			NMI X15		418/4		Hilt	29			Brown							Flattened area looks modern/C19	
419	Beland*			NMAS DM1	Bell	419/4		Complete	625	41	50	608	Black						Plenty of small nicks along widest part of blade. Hilt a bit rough.	
420	Beland*			NMAS DM3	Bell	420/4		Bl & Shs	544		724	Shiny black							Very heavy, very shiny patina, holes neatly drilled, edges round. Looks like a fake	
421	Beland*			NMAS DM4	Bell	421/4		Bl & Shs	557		520	Black			V worn blade. Sword feels heavy				Flattened lozenge. Bevel & middle faint but still visible	
422	Beland*			NMAS DM5	Bell	422/4		Bl, Shs & broken hilt	576	43	52	630	Black						Good oval section with prominent flanges marked by change in patina. Blanks clear on shoulders	
423	Beland*			NMAS DM6	Bell	423/4		Bl & Shs	540	35	50	448	Black						Mottled black patina	
424	Beland*			NMAS DM7	Bell	424/4		Bl & Shs	500	39	50	Black			Some green accretion					
425	Beland*			NMAS DM8	Bell	425/4		Bl & Shs (recon)	548			528	Black							
426	Beland*			NMAS DM10	Bell	426/4		Complete	478	38	39	394	Black	2(+1bl) 2					Very flattened cross section	
427	Beland*			NMAS DM11	Bell	427/4		Bl & Shs (recon)	469		37	412	Black, some accretion						Flattened lozenge section	
428	Beland*			NMAS DM12	Bell	428/4		Complete	535	37	46	468	Black	02-02-00					T O'Hara 1845 inscribed on blade both sides. 2 good little nicks	
429	Beland*			NMAS DM19	Bell?	429/4		Upper br & shoulder	289		55	Black and brown mottled							Flattened oval with good bevelled edge	
430	Beland*			NMAS DM20		430/4		Blade	207	43		Dark brown, mottled								
431	Beland*			NMAS DM21		431/4		Upper br & shoulder	189		48	Khaki		02-02-00					Hilt slightly skewiff. Slightly dished hilt flanges	
432	Beland*			NMAS DM22		432/4		Blade	185	44		Dark brown, smooth							H&C blade	
433	Beland*			NMAS DM24	Bell?	433/4		Blade	142			Black								
434	Beland*			NMAS DM35		434/4		Blade	224	32		Dark brown			Worn & slightly dished. Cleaned					
435	Beland*			NMAS DM26	Bell?	435/4		Blade	312			Black								
436	Beland*			NMAS DM28		436/4		Blade	103			Khaki			Smooth surface					
437	Beland*			NMAS DM29		437/4		Blade	133			Khaki			Poor casting, lots of air bubbles					
438	Beland*			NMAS DM31		438/4		Blade	228	29		Khaki			Worn and pitted					
439	Beland*			NMAS DM32		439/4		Upper br & shs	200		46	Dark brown		2.2 2R	Pitted surface, hilt outline visible				May belong with E440 (DM 33)? Looks good but doesn't actually fit.	
440	Beland*			NMAS DM33		440/4		Blade	328	29		Dark brown			Pitted surface, some green accretion					
441	Beland*			NMAS DM36		441/4														
442	Beland*			NMAS DM	Bell	442/4		Hilt	46			Dark brown		2(+1bl)						
443	Beland*			Harman/NMAS7		443/4														
444	Beland*			Leeds D1964.0277	Wessex/Holmes	444/4		Hilt, upper br	178		41	Dark khaki		3.3(+3bl)	Good hilt detail. Overhang sh. holes.					
445	Beland*			Leeds D1964.0279		445/4		Complete	484	47	32	470	Dark brown	1(+1bl) 2(+2bl) 1R	Hilt repair. Cast on.					
446	Beland*			Leeds		446/4														
447	Beland NOT IN MUSEUM			Lim (Cirvi) 128		447/4													Hebert (1941), 84	
448	Beland*			BM 63.1.22.117		448/4		Bl & lower hilt. 2pcs	436	36	44	Dark brown		2.2 (+2bl)	Modern blade join					
449	Beland*			BM 78.11.1.202		449/4		Bl & hilt (no tang)	579	45	50	854		03-06-00	V heavy & nicks on edge				May be a copy but looks OK	
450	Beland NOT FOUND AT BM			BM		450/4													Couldn't be traced in Museum Feb 2013	
451	Beland*			BM POA 181		451/4		Bl & hilt, no terminal	354	23		Khaki/green		2bl 2	Rough surface. Hilt repair?!					
452	Beland*			Humman		452/4		Complete	644	43	52	784	Dark brown, almost black	03-06-00	Bl edges rounded. Some bud				V heavy, unusual strengthening ribs, casting flanges on edge. Poss copy	
453	Beland*			Newbury		453/4													Goshan (1953), 99	
454	Beland*			Newcastle 78		454/4														
455	Beland*			Newcastle 79		455/4														
456	Beland*			Newcastle 81		456/4														
457	Beland*			Newcastle 84		457/4														
458	Beland*			Newcastle 86		458/4														
459	Beland*			Ashm 1911.604		459/4														
460	Beland*			Ashm 1927.2889		460/4														
461	Beland*			Ashm 1928.2890		461/4														
462	Beland*			Ashm 1927.2894		46														

Table 1

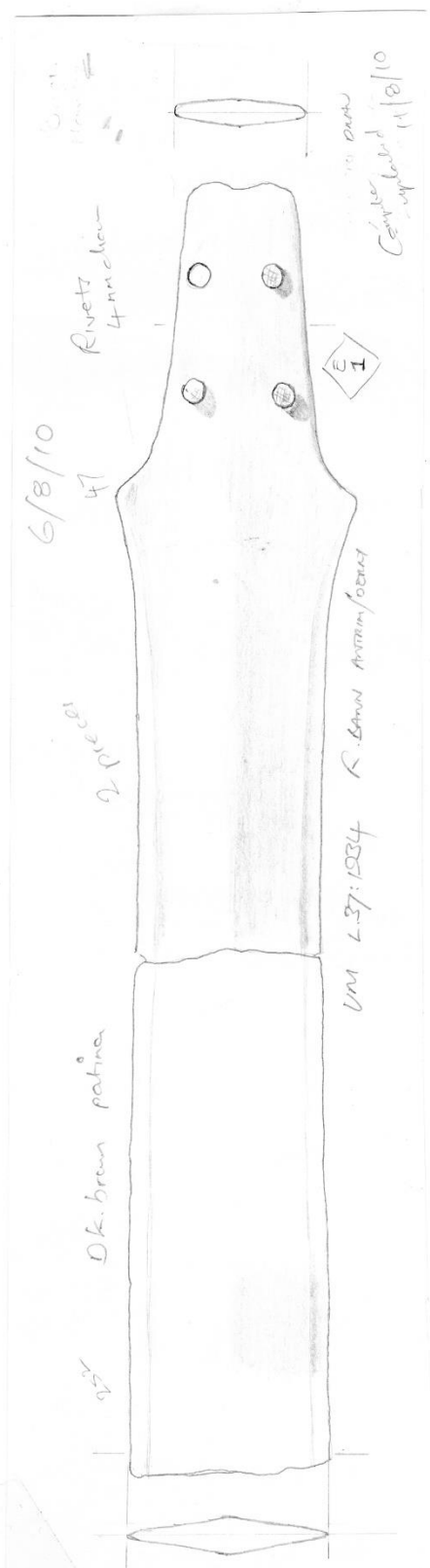
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
472	474	Lurg	Fermanagh	NMI 1906/221		474/4		FAKE											
473	475	Cloham	Mayo	NMI R1653		475/4		Comp (see tip)	400				Black	Sl/2	Hilt repaired, minor edge damage	E: 'Found at Cloham Castle'			
477	476	Leigh	Tipperary	NMI 1894-12		476		Complete	470	39	46	481	Black/whaki	Sl/4	Hilt repair. Minor edge damage	NMI card: 'Leigh Bog, Two Mile Borris'			Is this an example of an earlier hilt with slot raised on an EP sword?
477	477	Roughan	Tyne	Armagh C 66-1935	Robinson?	477		Hilt & a bit blade	397	53	42		Brown	Sl/2b	Modern bit join. Hilt for unused?				hilt are bits. Rough cast. Hilt fits visible
478	478	Urag (Co Tyrone)	Tyne	Alnwick Castle 387	Walker?	478		Complete	667	49	51	1036	Dk brown, cleaned	2sl/2	A fine sword. Minor edge damage	Label on sw: 'From James Leadram Esq. Found with 4 other swords in a tumulus in Co Tyrone 1831'			4 other swords? Possibly E479
480	479	Urag (Co Tyrone)	Tyne	Alnwick Castle 388	Walker?	479		Complete (tip missing)	564	32	45	470	Dk brown, cleaned	2sl/4	Hilt repair & tip join	Poss found with E478			4 other swords? Possibly E479
480	480	Balesaghy	Derry	BM W/G1227		480/4		Complete	629	37	44	516	Dk brown, patchy	03:06:00	Both edges worn & serrated. Sh. damage				4 other sword? Poss E479
481	481	Limanady	Derry	Ashm 1927/2891		481/4													Evans (1881), 291; Fig 354
482	482	Urag	Armagh PL 130	Beresford	282			FAKE?	645	42		670	Green	03:06:00	Worn blade. Slightly kinky blade!				Identical hilt to E560, longer bl. Bl shape & green patina suggest Cen Egon origin.
483	483	Ireland*		NMI 1890-32		483/4		FAKE?											Bourke (2001), no. B108
484	484	Toome Castle*	Antrim	NMI W16	Wilde	484/4C		Bl. shs & lower hilt	506	35	47	601	Dk brown		Worn. Hilt repair				Nice HaC point. Bevel noticeably narrower one side
485	485	Dumacallan*	Clare	NMI 1960/562		485/4		Bl & lower hilt	511	37			Dk brown/orren	2.4.1R	Combed? & edges damaged	E: 'Found on the shores of Dumacallan Lough'			
486	486	Chonness North*	Linos	NMI F1955/18		486/4		Bl & section hilt	463	33	51	469	Black	7.5.4th rivets & 1 hilt rivet in situ					Wide bevels
487	487	Urag	BACC	Farnham BACC		487/4		Complete	548	36	48	706	Dk brown	2x.1hilt/5x+1hilt/3R	Good condition, well cast. HaC point. Edges damaged				Dashed rivets 32 diam. Gifo outline visible.
488	488	Ireland*	NMI P241			488/4		Complete	585	44	51	669	Black, patchy		Edges damaged				20mm pin rivets. Flanges deeply dished
489	489	Ni Ardara*	Donegal	UM 3885 (8-82)	Grainger	489		Complete	614	40	48	682	Dk brown	03:04:00	Good cast. Some cleaning				Note dished hilt edges. Slight hilt outline visible
489	491	Tipperary	Tipperary	RUSI London 679	BACC	491/4		Complete, 2 pcs	521	32	44		Dk brown	03:06:00	Rough surface				
489	492	near Athlone*	Roscommon	BM 63.1.22.115		492/4													Report NMI (1930-1), 13, at 3.3
489	493	Graigau*	Carlow	NMI 1930/518		493/4		44	595	39	55	731	Brown	2.4.4R	2 pieces & corroded	NMI card: 'Deduced from the River Barrow'			Rivets 42mm diam. 2 x 130mm length; 2 x 140mm length.
489	494	Ni Tara*	Meath	NMI 1927-47		494/4		Complete	506	35		406	Black, patchy	3.87	Surface corrosion				Modern plaster cast hit blades added. NMI card: 'Naylor, Upper Liffey Street' Dubious appearance
489	495	Knocknacramore*	Roscommon	NMI 1841-332		495/4		Complete	578	42	50	804	Black	02:02:00	2 pieces. 3 pcs. Edges flattened				V heavy. Edge worn & rubbed down. Holes 2mm diam. Pockmarked blade
490	496	Ireland*	NMI 1874			496/4		Complete	507	32	47		Black	3.4.36	2 pieces, ancient look. Minor edge dam				
490	497	Killalea	Mayo	NMI W87		497/4		FAKE?	403										
490	498	Ireland*	NMI 1897-48			498/4		Upper bit & hilt	202				Black	2.2.1R 3 diam	Hilt good. Upper bit edges delts damaged	Old label reads: 'Mr Rothwell, Kells 1897'			
490	499	Dowth	Meath	NMI W59		499/4													
490	500	Ireland*	NMI 1881-180			500		Bl & shs	472	33	43		Black		FORGERY/REPLICA. See research notes				This is identical to W59. Ricassi odd shape. Blade shape OK, but wear patches not
490	501	Gortale*	Antrim	UM 124-1936		501		Bl & shs	524	24	52		Dk brown	7.8	Worn blade & edges	E: 'Found in the River Ban'			
490	502	Toome*	Antrim	NMI W37		502/5		Bl & lower hilt	678	32	59		Dk brown	2.2.1R 3 diam	Hilt repair. Small caroline flares on bl.				Wood-Martin (1886), 171; P.37.2
490	503	Toome*	Antrim	NMI W32	Wilde	503/5		Complete	654	28	54	618	Dark brown	2.4.4LA RIVETS	Hilt & tip repaired	E: 'River Bann at Toome Bar'			Blade section worn.
490	504	Leah Toome	Antrim	Private BACC		504/5													
490	505	Roe Barr	Antrim/Derry	UM 134-1961		505/5													
490	506	Curis*	Antrim	NMI W36	Wilde	506/5		Complete	688	31	59	700	Black	2.4.2R	Shs damaged				Nice HaC point, edges undamaged; one sh damaged
490	507	Lough Oughter*	Cavan	NMI W33	Wilde	507/5		Bl & lower hilt	620	28	51		Black, patchy	03:06:00	Worn blade & shs. Accretion on hilt				
490	508	Groomsport*	Down	NMI 1929-1501		508/5		Bl & shs	605	33	59	581	Dk brown	7.4.2R	Excellent blade	NMI card: 'Groomsport, Banagar, Ards Lower'			Beautiful section and edges
490	509	Ponera	Fermanagh	Queen's Univ Belfast		509/5													
510	510	Keelogue Ford*	Galway	NMI W31	Wilde	510		Complete	631	29	56	563	Black	2.4.6R	Minor edge dam. Hilt & tang repairs	E: 'Found in the Shannon at Keelogue Ford'			Square 3mm diameter rivets, most rounded at tips. Good repairs
510	511	Rahin*	Kildare	NMI W20	Wilde	531		Blade	535	25			Black		Shs and hilt damaged	E: 'on hand gravel under alluvium, in cutting a new course for the R. Boyne'			
510	512	Urag	Limerick	NMI W38	Wilde	512/5		Complete	719	33	59		Black	2.4.2 in tang 5R	2 pieces. Shs damaged				Nice slender HaC blade and tang
510	513	Derrycarnagh*	Louth	NMI W35	Wilde	513/5		Bl & shs	600	26	57	572	Black						Hilt seg from bl in NMI. Rivets 3 mm diam. Nice incised spiral.
510	514	Urag	Mayo	Homiman		514/5		Bl two-tyls lower hilt	635	28	56		Dk khaki	02:05:00	3 pcs inc hilt repair. Cleaned surface				Edges heavily nicked.
510	515	Cootchill*	Roscommon	NMI W34	Wilde	515/5		Complete	515	26	56	564	Black	2.4 (2 in tang)	Worn edges & bevel	NMI label: 'Cootchill Shoal, Boyle Water' (E has R Boyle)			Slight change in patina nr tip: evidence of chip?
510	516	Denmagaquir*	Roscommon	NMI E20-877		516/5		Bl & hilt. No term	665	33	60		Dk khaki	03:06:00	Rough surface. Serrated bit edges	E: 'Found on the shores of Lough Gara'			
510	517	Roasky Ford	Roscommon/Letrim	Glasgow 1902/73h	Anderson Colloze	517/5		Missing upper arm and butt	647	28	42	489			very worn, point bent; dark brown patina. 2 pin rivets in grip. 2x2 in shoulders, left outer rivet missing. Broad midrib tapering below inner shoulder rivets to narrow midrib reaching to lower grip rivet. Oval blade section with much reduced remains of cutting edge.	E: 'From the River Shannon at Roasky Ford'			Grooves worn. Rivets 3.5 mm diameter. Tang repair.
510	518	Tumras*	Roscommon	NMI W39	Wilde	518/5		Complete	750	33	56	873	Black, patchy	1.2 (1 in tang)	Minor edge damage, clean blade				
520	519	Cullen	Tipperary			519/5													Full details in Eogan (1983)
520	520	Cullen	Tipperary			520/5													Full details in Eogan (1983)
520	521	near Athlone*	Westmeath/Roscommon	NMI P242		521/5		Complete	572	34	61	676	Black	3.8+2 in tang 7R	Beautiful weapon & rivets. Bl blamish.				Full details in Eogan (1983)
520	522	near Athlone*	Westmeath	NMI W77	Wilde	522/5		Hilt & upper bl	305		59		Khaki	3/2+2.6.6R	Twisted 4sl diam. Hilt dam at tang & shs	E: 'Said to have been found with nos 523, 532 and 534'			4 swords. 522, 523, 524 & 532 (E)
520	523	Ni Athlone*	Westmeath	NMI W80	Wilde	523/5		Bl & lower hilt	572	34	54		Black	7.6.4R	Bent blade & hilt broken. Twisted	E: 'Said to have been found with nos 522, 524 & 532'			4 swords. 522, 523, 524 & 532 (E)
520	524	Urag	UM 3890 (8-11)		524			Blade hit	372	24			Dk brown/green		Worn				Looks like a rapier but just possibly an HaC blade.
520	525	Ireland*	UM 475/1937A			525/5		Bl tip	382	30			Dk brown		Good HaC beading				
520	526	Edenderry*	Offaly	Camb MC99-183		526/5		Bl & shs	624	31	61	684	Green	7.4.4R R 0.28 diam	Feels more like iron in weight				
520	527	Ireland NOT IN MUSEUM	Camb MC99-184			527/5													Acc to Camb on loan to Grange Heritage Centre but this has shut. SEE ENTRY IN E.
520	528	Edenderry*	Camb MC99-185			528/5		Complete	611	30	56	534	Black, patchy on blade	2.4.1R 2 small sh bits	Edges sham but knitted: poss hilt repair				
520	529	Ireland	Dezires			529/5													
530	530	Ireland*	NMI W2	Wilde		530/5		Complete?	660	38	59	718	Black	2.8.1 in tang 10R	Modern metal hilt repair				Wide Cat. 445; fig 319; Evans (1881), 296; fig 356; Rahery (1951) fig 209
530	531	Roev Shannon*	Limerick	NMI W21	Wilde	531/5		Bl & lower hilt	484	18			Black	7.4.1 stub R	Rough surface on hilt. Edge damage				Pin rivets 1.8 mm diameter. Unusual combination. White accretion around rivets.
530	532	Ni Athlone*	Westmeath	NMI W40	Wilde	532/5		Complete	756	35	60	852	Black	2.4.2 in tang 5R	Edging and bl damaged in central section	E: 'Said to have been found with nos 522, 523 & 524'			4 swords. 522, 523, 524 & 532 (E)
530	533	Ireland*	NMI W55	Wilde		533/5		Bl & shs	582	30	58	607	Black	7.2	Worn blade, from oxide type accretion.				Wide Cat. 445; fig 319; Evans (1881), 296; fig 356; Rahery (1951) fig 210; Rahery (1951) fig 210; Rahery (1951) fig 210; Rahery (1951) fig 210
530	534	near Athlone*	Westmeath	NMI W64	Wilde	534/5		Bl tip	255	30			Black						Rivet diam 3.6mm. Just possibly an IRON SWORD
530	535	Ireland*	NMI 1882-183			535/5		Complete	636	40	62	802	Black	02:04:00	Shiny blade. Sin edge damage				
530	536	Ireland*	NMI 1890-35			536/5		Blade lost	220	29			Khaki		Nice HaC point. Narrow bl. delts edge dam				Dead straight blade
530	537	Ireland*	NMI SA 1898-112			537/5		Complete	657	31	63	619	Dk brown	2.4.2R	2 pieces: hilt broken. Blade combed				
530	538	Ireland*	NMI 1963-30			538/5		Complete	598	34	62		Black	2.2.3R 3 diam	Slight depression on blade. Men?				Ricassi worn. Pin rivets 2mm diameter. 11mm & 14mm lengths.
530	539	Killalea*	Clare	NMI 1834-192		539/5		Complete	588	34	61	759	Khaki	3x1.2.1R 3D	Shiny surface. Hilt outline via hilt repair	E: 'Found in the River Shannon near the sites of the old sluice races at Killalea'			Dashed rivets 32 diam. Gifo outline visible.
530	540	Ireland*	NMIAS DM18	Beil		540/5		Complete	700	32	51		Black	1.2.1.1					Heavy hilt. Hilt outline and ricassi look genuine. Good shape hilt & shs
530	541	Ireland*	hull 53			541/5													
530	542	Ireland*	BM 64.7.14.282			542/5		Complete	584	27	48	496	Dk brown, patchy	2.4.4R R 0.28 diam	Bl surface crack & casting flaw				Delts dished & hilt slightly bent. Label reads April W 13 10: Fenton 11, New Oxford St London
530	543	Ireland	Private			543/5													
530	544	River Bann	Antrim/Down	UM		544/5													
530	545	Irishmore*	Cavan	NMI 1937/3647		545/5		Complete	456	33	47	445	Black	02:02:00	2 pieces, broken on hilt.	Old label: 'River Erne find Irishmore, Co. Cavan 3.12.37 Pat Jos. Feehan'			Note on label: 'tang cracked not detached in Eogan (1983)'
530	546	Devil's Bit Mountain*	Tipperary	UM 4022	Grainger	546		Hilt & shs / bit	157	40	53		Dk brown		Hilt repair. Edges badly damaged	E: 'Allegedly found with bit side exposed sep.'			2 pieces DO NOT fit but seem to be part of the same sword. Square rivet 25mm diam. 2mm diam sin rivet. Porous surface.
530	547	Anneteer*	Tyne	UM 42-1936		547		Bl & shs	594	41	58		Dk brown	7.2	Hilt repair. Slightly porous surface.				Heavy hilt. Hilt outline and ricassi look genuine. Good shape hilt & shs
530	548	Urag	Grainger	UM 3883 (8-21)		548		Complete	479	40	52	520	Dk brown	1x1.1hilt-2	Heavily notched bit edge. Modern join				
530	549	Ireland*	NMIAS A1891-78	ex RSM 1891/78		549/5		Complete	566	36	52	594	Khaki	2.2.1R	Hely notched upper bit edge. Dam surface				
530	550	Ireland	Hullfax 22 (AW78)/Huddersfield			550/5													
530	551	Ireland?	Ashm 1927/2893A			551/5													
530	552	Ireland*	NMI X16			552		Bl & damaged sh											

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
560	564	Drumana*	Cavan	NMI 1960-725		564		Bl (no tip) & 1 hilt	549	43			Green	03.06.00	Both edges sig damage	E: 'Found in a rabbit burrow'			
561	565	Ards Beg	Donagall	Rosstownlagh D29		565										E: 'Found under about 1.20 metres of peat in a bog at Ards Beg, Gortabook'			
562	566	Toome Bar*	Antrim	NMI W11	Wide	566		Bl & shs	492	46			Dk brown			B: C19 drainage spread over Toome Bar bottom with other artefacts 0.3 to 0.6m under sand			Nice early lozenge sectioned blade
563	567	Ireland*	NMI W14	Wide		567		Bl & shs	470	45			Patchy black	7.4	Surface corroded				
564	568	Portora*	Fermanagh	NMI 1961-6		568		Blade lost	276	41			Dk brown			B: Recovered from the bed of the Erne during dredging operations about 1860			
565	569	Downs?	Offaly	BM 83.2-18.41		569		Complete 2pcs	510	40	50	518	Dk brown, patchy	3.49l	Modern bl join	Full story in Eogan (1983), 117-8		Bourke (2011), no. 567	BM has this sword as Urp...probably a BM mistake
566	560	Ung*		Armagh PL 137	Bereford	560		FAKE. No tang	583	41			Dk brown	03.06.00	Worn blade. Shape unconvincing				Identical hilt to E452. Blade is shorter though, and rather clumsy. An obvious copy.
567	561	Ung*		Prossie		561													
568	562	Ireland*		NMI W6		562		Complete	586	37	48	620	Black	03.04.00	Minor edge damage. Sh decoration				Same deco both sides. Looks like a copy but appears genuine. Hilt outline visible
569	563	Lough Corrib	Galway	Private		563													
570	564	Ireland*		NMAS DM30		564		Bl & shs	315				Green, pitted surface	7.2	Very worn. Shs altered & damaged				
571	565	Ballindemesia NOT@MUS	Kerry	Cork L188-73		565										E: 'Found when digging a drain in a bog at Ballindemesia'		Full list in Eogan (1983), no. 119	
572	566	Ung*		Armagh/Monaghan	Armagh C 110-1935	Tenison	566	Complete	590	40			Dk brown	3.7	Damaged shoulder				
573	567	Grange*	Londonderry	NMI 1959-170	567/4	567		Complete	542	38	48			03.02.00	Tang damaged	Found at Grinard J F 3.6 1864 (label)		Westhamp (1982), 62; Bourke (2001), no.8109	Unusual raised cent hilt rib. FAKE, but a good one. Hilt ridges heavy. Identical to E569
574	568	Ung*	Londonderry	NMI 1959-171	568/4	568		Complete	388	32	271	Black/green			1 sh damaged	Fine bronze sword Co Londonderry 1864 (label)		JRS&I 81(1961), 84-6; JRS&I 91(1961), 85; fig.19	APPEARS TO BE A FAKE. BLADE STRANGE SHAPE AND HILT TOO LONG. Looks genuine but hilt very odd
575	569	Ung*		Armagh PL 131	Bereford	569		Complete (no tang)	590	40	51	608	Dk brown	03.04.00	Bl profile too thin below hilt				Hilt section has raised midrib. Identical to E566 in Armagh C. Looks C Egan
576	570	Rathcarick*	Sligo	NMI 1939-69		570		Complete (no tan)	554	40		847	Black	05.06.00	Blunted & heavy. REPLICA	Nothing on card. See associations.			REPLICA. Break from original visible in casting below shoulder.
577	571	Knockatemple*	Wicklow	NMI 1915-11		571		FAKE								E: 'Museum register states Knocktemple, Co Wexford. there is no such place.'		Price (1935), 59. In 63	
578	572	Ireland*				572		COMPLETE											
579	573	Ung*		Armagh/Monaghan	Armagh C 110-1935	Tenison	573	COMPLETE											Westhamp (1982), 62
580	574	near Limavady		UM 737-1954		574		FAKE											
581	575	Holycross NOT IN MUSEUM	Limerick	Lim(Civ) 125		575													
582	576	Finnon*	Tipperary	UM 489-1927		576		FAKE											
583	577	Finnon*	Tyone	NMI 1959-181	577/4			Complete	564	53	51					E: Said to have been found in the parish of Finnon			
584	578	Ung*		Armagh C 5-1955	Burges			COMPLETE											
585	579	Ireland*		Armagh C 6-1955	Burges			FAKE											
586	580	Ireland*		Armagh PL		580		COMPLETE											
587	581	Ireland*		UM 105-1906		581		FAKE											
588	582	Ireland*		UM 1911-167		582		FAKE											
589	583	Ung NOT DRAWN		UM 1910-776		583		FAKE											
590	584	Ung*		UM 4012 (10-2)		584		FAKE											
591	585	Ireland*		UM		585		Complete	547										Outline drawing only
592	586	Ireland*		NMI		586		FAKE											
593	587	Stath Da Chon*		NMI 1883-327		587		FAKE											
594	588	Ireland*		NMI 1883-326		588		Complete	574			820							
595	589	Ireland*		NMI W70		589		FAKE											
596	590	Ireland*		NMI W69		590		FAKE											
597	592	Usachin*	Derry	NMI 21-10		592		Complete											
598	593	Blackhill*	Laois	NMI 1962-57		593		Complete	430	30	38		Green	2.2 (1 extra)	2 pcs. Edge damage.	E: 16' below surface of Lisachin Bog near Killea...hardly a genuine Irish prehistoric piece'		Monis (1920), Fig p 321	
599	594	Ballyroe*	Limerick	NMI 1962-18	594/4			Blade lost	254				Dk brown			E: (1983) 'In topsoil from stone quarry close together'		JRS&I 94 (1964), 92; Eogan (1983) Hoard no. 96	Note odd position of rivet. Hilt has evidence of repair on top but tang appears 1 piece
600	595	Cocon*	Sligo	NMI 1942-1873A	595/4			Sh lost	103				Dk brown			E: (1983) 'Found in 1941 under a rock on the site of a cutaway bog during drain making'		JRS&I 94 (1964), 92; Eogan (1983) Hoard no. 100	Founder's hoard? Studied by Alex Brea, Cork Univ July 2009
601	596	Ireland*		NMI 1959-192	Dr Leeson, Dublin	596/4		Shs & scabbard					Black						
602	597	Ung*	Antrim	NMI 1938-44	Wallace	597		Blade lost	288	38			Black & green						
603	598	Ung*	Antrim	NMI 1938-45	Wallace			Complete	699	47	57	713	Black	3.4 (x26)					
604	599	Ung*	Derry?	NMI X17	599/4			REPLICA?	497	39	52		Dk brown	7.2	Dull patina. 3 pcs. Modern breaks on bl				
605	600	Ireland*		NMI X18	600/4			Blade & lower hilt	493	34	46		Brown	7.2 (x26)					
606	601	Ung*	Tipperary	NMI X19	601/4			Complete (no tip)	538	34	46		Dk brown, mottled	03.06.00	Possibly a replica, but a very good one.				
607	602	Caheraderry	Clare	NMI 1929-1407	602/4														
608	603	Broodagh	Donagall	Private (NMI files)	603/4														
609	604	Glenross	Fermanagh	Private	604/4														
610	605	Lisamainagh	Galway	Private	605/4														
611	606	near Adagh*	Limerick	Lim(Civ) 174	606/4			Upper bl & hilt	292		144		Dk brown	03.04.00	Bl edge damage, otherwise good				
612	607	Chondale More*	Mayo	NMI 1963-5	607/4			Blade lost	171	40			Dk black						
613	608	Bunafinglas*	Mayo	NMI 1963-71	608/4			Complete	478	33	44	521	Black/brown						
614	609	Shrule	Mayo	Private	609/4														
615	610	Ung	Cork	PR Oxford 1487	610/4														
616	611	Cullen	Tipperary		611/4														
617	612	Dunloy	Antrim	Ontario 913x11.13	St Columba's Collec 612/4														
618	613	New Ross	Wexford	Ontario 909.68.1	613/4														
619	614	Enniskillen	Fermanagh	Ontario 913x11.2	St Columba's Collec 614/4														
620	615	Ung*	Offaly?	NMI 1965-3	615/4			Blade & shs	388	33	41		Black						
621	616	Ireland?		Ontario 913x11.6	St Columba's Collec 616/4														
622	617	Ireland*		Ontario 918.33.96	St Columba's Collec 617/4														
623	618	near Armagh	Armagh	Ontario 913x11.1	St Columba's Collec 618/4														
624	619	Cooleenauran*	Mayo	NMI 1963-70	619			Complete (no tan)	792	41	62	834	Dk brown	1.2 1 in tang					
625	620	Ireland*		NMI X20	620			Blade lost	255	27			Dk black						
626	621	Ireland*		NMI X21	621/4			FAKE											
627	622	Nr Armagh*	Armagh	NMI 1939-70	622			Complete	597	46	60	742	Bright green	2.2 (1 in tang)	An odd sword: see notes				
628	623	Tang?	Mayo	Phymouth 72.24.114	623														
629	624	Rathcarick	Sligo	45.197.2															
630	625	Ireland*		NMAS DM17	Ball			Complete	551	37	34		Black						
631	626	Cloonmanagh*	Sligo	NMI 1935-21				Complete	482	37	58		Black						
632	627	Ireland*		NMI 1906-218				Bl & shs	630	41	56		Black, patchy	36.4 1R					
633	628	Kilcoigan*	Offaly	NMI 1992-60				Blade	345	34			Black						
634	629	Reask*	Galway	NMI 1970-218				Bl & shs	418	33	42		Black	7	Blade good, hilt poor.				
635	630	Ballyvaughan*	Clare	NMI 1989-109				Complete	511	36	46		Black, orange corrosion	34x16lx4 1R					
636	631	Londonderry Pass North*	Tipperary	NMI 1990-25				Complete	469	34	45	446	Dk brown, green corrosion						
637	632	Lullmore Bog*	Kildare	NMI 1999-58				Blade	325	32			Khaki green						
638	633	Mondreghat*	Laois	NMI 1995-100				Complete (no tan)	524	33	45	527	Black, smooth	21x16lx21x16l					
639	634	Ireland*		NMI 1990-115				Complete	467	38	46	525	Black, brown corrosion	02.02.00	Edges undamaged				
640	635	Macbush North*	Galway	NMI 1995-94				Complete	597	42	56	738	Black, reddish corrosion	3.6 7R					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
910	911	Ireland*		NMI 1997-47				Complete (no tip)	464	38	48	488	Black, green corrosion	02-04-00	Both edges badly damaged				Rivet holes neatly drilled
910	912	Beltia Lough*	Mayo	NMI 1999-22				Bl & shs	416	30			Dk brown, green corrosion		Corroded & bevets faint	NMI index. Found while swimming in lake			
910	913	Barnbeg*	Roscommon	NMI 1982-70				Complete	517	37	43	483	Black, red corrosion	3-2 2R	3 stub rivets. Pink accretion on 1 side	B. Recovered during scuba diving in 1981 at Barnbeg	Bourke (2001), no. S119		Bevel narrows on blade: resharpened? Rivets 3 mm diameter
910	914	River Shannon*		NMI E92-406	Chapman?			Upper bl & shs	Complete	648	30	55	648	Black	2-4 6R	Bl worn & pitted. Ricasso worn	Old label on sv... in the River Shannon when it was run by. 1839 to 1845		R 3mm diam. Note blanks on shs. Can't find sv in Econ.
910	915	Killy Castle*	?	NMI E92-408	Chapman?			Bl fgt	268	29	42		Black		2 pieces. Modern join.	NMI index: 'metal detected at side of road'		Can't find in E.	Shells warped. Edges damaged.
910	916	Malina North*	Wicklow	NMI 1992-96				Upper bl & shs	237				Black		Bl edge damaged				
910	917	Cam*	London	NMI 1980-117				Bl & shs	492	25	54		Dk brown/clean	7-4	Minor edge damage. No ricasso	NMI index: 'too 5 ft deep'			
910	918	Lough*	Tipperary	NMI 2002 C1-534				Bl fgt	507				Green		Slight midrib still visible				
910	919	Ulp*	Wicklow?	NMI E92-407	Chapman?			Complete (no tip)	562	52	40	550	Black/clean blade	2x (1bl-4x2bl)	No tip & edge damage. Possible copy				Hill outline visible & tang broken. Could be copy but details say genuine.
910	920	Ballymoren*	Leitrim	NMI 1988-33	Clarke			Bl & lower hilt	452	40	44		Hilt repair. Corroded	7-2 1R	Hilt repair. Corroded	Card: from island on Lough Feenagh. Bought 1988 as part of Colin Noel Clarke			1 bent rivet 4mm diam
910	921	Tulworthmacleanes*	Tipperary	NMI 1986-53				Blade	460	33			Dk brown		Corroded & edge damage	NMI cor M Cahill visited site 1/6/84: 12 to 18 in deep nr poss 2 burnt mounds			
910	922	Carrickboy*	London	NMI 1987-78				Blade fgt	139				Black/dk green		Corroded	Label: Metal detector material ex Phil Doyle, Corteen, London			Catalogued with flint & stone ahead but no suggestion of association
910	923	Meelick*	Roscommon	NMI 1985-88				Bl & shs	389		44		Black, patchy	7-2	Corroded. Six edge damage	NMI index has 'bog 1m deep' Donation from Sheffield Museum. Found c. 1950			
910	924	Mayne*	Westmeath	NMI 2008-20				Bl & shs	353		38		Dk brown	7-2	Green corrosion	NMI index: Found with a metal detector on the banks of the River Inny	71 seearfuti: 2 shs		No possible wooden trackway. Small 2000 reddy good 1000 to 500 BC C14. See NMI notes
910	925	Lough Erne*	Fermanagh	NMI 2008-86				Complete	601	41	52	505	Black	3.4 (+26)	Worn blade	Purchase from McGrath, Aberdeen. No. 88 in 1911 Colln of Durnoven Castle. see paper notes			Card needs to be seen, Not in Eogan. 127 in red paint on blade 2 holes in bl (modern)
910	926	Konside*	Cork	NMI E92-409	Chapman?			Sh fgt	140				Green		Very worn	E (1983): 'In a pit alongside a glacial erratic by a bulldozer excavated'	1 mg. 1 chisel, 1 surfboard pin	Eogan (1963), Hoard no. 114	
910	927	Inishmore*	Caean	NMI E28-6	Chapman?			Bl fgt	398	24			Dk brown		Very worn	Label: James Kelly at Inishmore opp. Ulinay graveyard			
910	928	Park*	Meath	NMI 1974-38				Hilt & upper bl	198		43		Dk brown/green	2x (1bl)-2	Hilt repair. Corroded blade				Well drawn in Hoards volume
910	929	Ireland*	NMI W72					Complete?	636	25	37		Black	7	Original blade with modern handle				
910	930	Ballyhenney*	Westmeath	NMI 1966-57				Complete	760	43	62	720	Black, patchy	5/6 6R	Blade appears to have been cleaned	3 awards: 522, 523 & 524? (IE)			Tang damage, otherwise good condition. Accurate drawing in Gifford 1981
910	931	Aughrim*	Kerry	Berlin V d 5th	Backstone			Complete	506	35	43	436	Brown	03-04-00	Faint hilt not visible. Minor edge damage	Old label reads in English: 'June 1, 1850. Brackstone Coll. no.4367'			Slightly bent at break. Surface stressed. Notches & repair wire on hilt. Upper holes for repair?
910	932	Lough Lenean*	Kerry	Berlin V d 3th/bb				Complete in 2 pcs	502	35	47		Dark khaki	3.6 (see notes)	Corroded, striations on bl. Hilt repair.	Label reads: 'V-d 3th. Killamee-Sea. Geuch Kerry'			Eogan (1965), 181: Gifford (1981)
910	933	Lock*		BERLIN V d 3th/bb				Complete	497	34	44	452	Dk brown	2x (1bl)-2 (+1bl)	Hilt repair. Cracks on hilt	Minor dredging of the Silees River by Dept. of Agriculture staff in 1990			Eogan (1965), 181: Gifford (1981)
910	934	Killynoman*	Fermanagh	UM A140 1989				Complete	420				Dk brown		Hilt repair. Cracks on hilt				Bourke (1994), 8
910	935	Enniskillen*	Fermanagh	UM A5 1980				Bl & hilt, no tang	492	42	53		Dk brown, shiny	2x (1bl)-4 (+2bl)	Shiny blade. Some pitting. Clean edges				Drawn at Enniskillen. UM loan
910	936	Ireland*	Ballymoney BHC 1992-15					Hilt & shs	155				Brown, cleaned	03-04-00	Hilt repair. Cracks on hilt				Drawn at Enniskillen. UM loan. Slightly bent. Nice edges & well made. Raised hilt outline as no SVR
910	937	Ireland*	Ballymoney BHC 1992-13					Shs & upper bl	156		48		Khaki, cleaned	7-6	Pockmarked surface				Note raised hilt outline, like E148 UM 581-1934
910	938	Ireland*	Ballymoney BHC 1992-14					Bl fgt	302	0			Cleaned		Shiny pockmarked surface				Doesn't fit 1992-14, but may belong to same record as three above similar
910	939	Ulp*	Armagh C 67-1968	Caledon				Bl fgt	247	51			Dk brown		Some bx d				Doesn't fit 1992-13, but may belong to same record as three above similar
910	940	Ulp*	Lim(hunt) HCA371					3 pieces, 1 missing	632	51	63		Dk khaki	SI2 (+26bl)R 3.5D	Lacquered surface	Circumstances of acquisition u/k			Came from Earl of Caledon, Caledon House (Armagh or Tyrone?) Nice genuine bl.
910	941	Kilrea*	Derry	UM A6992				Bl fgt	167	37			Dk green		Surface accretion	B. Recovered from spoil dredged from the lower Bann and dumped at Kilrea			A Ballymore report not in E.
910	942	Gortale*	Antrim	UM A7638				Complete, no tip	532	40	49	628	Green/dk brown	2-27	Accretion over complete sword				Bourke (2001), no. B110
910	943	+	UM A7034					3 pieces, Tip missing	582		55		Green/dk brown	2-4 6R	Some accretion. Worn bl edges	Bourke: from "...excavation of spoil dredged from lower Bann & dumped at Gortale"			Rivet holes blocked with accretion. Well cast. Twisted
910	944	+	UM A7034					Bl, shs & lower hilt	639	50	61	738	Green/dk brown	SI 6	Hilt repair. Hilt outline visible				Twisted not leaf shaped bl. Rivets 0.3 mm (not pin). Bevels worn. Tang repair?
910	945	Killakee*	Clare	NMI 1974-29				hilt	361	35	40		Dk brown	7-2	No tip. Rough surface				Good casta, pockmarked surface.
910	946	Ulp*	UM 89-1854					Bl & shs	152		48		Brown	1/4-1bl-2 2R	Phenac corroded surface				
910	947	Dischannuray*	?	UM A121-1974	Robinson			Bl & shs	423	30	44		Dk brown		Worn bl & shs. Minor edge damage	Label: 'Dischannuray 1799'			2 stub rivets broken off in situ
910	948	Coleraine*	Antrim/Derry	UM E200-1965				Complete	480	30	41		Dk brown	02-04-00	Worn bl. Hilt repaired. Extra sh holes?	Label: 'R. Barn Coleraine: SI4 written on blade'			
910	949	+	UM A5-1971					Complete in 2 pcs	504	38	42	486	Dk brown	2-4 2R	Hilt repair. Pieces fit together well				
910	950	+	UM 275-1964					Hilt & upper blade	188		41		Dk brown	03-02-00	Well cast hilt. Bl corroded to khaki				
910	951	+	UM 91-1954A				Ballymore	Shs & upper blade	157				Khaki		Corroded				
910	952	+	UM A124-1974					Hilt & upper blade	268				Dk brown	02-04-00	V worn bl. Reshaped into dagger				
910	953	+	UM 471-1937B	Anderson				Complete	510	37	46	498	Dk brown	02-02-00	Pitted & corroded bl. Roughly cast hilt				
910	954	+	UM 1811-40	BNHPS/Leisav				Bl, shs & lower hilt	460	32	42		Dk brown	02-02-00	Edges damage both edges				Slightly dished hilt flanges
910	955	+	UM A126-1974					Blade fgt	406		43		Dk brown		Worn blade				
910	956	+	UM VM125-174	Robinson				Bl fgt	218	32			Dk green		Good bevel detail	Painted on blade 'Robinson Colln Irish'			May be Central Erop? Or an H&C blade?
910	957	+	UM A127-1974	Sanson				Complete 2 pcs	477	34	44		Dk brown	3x (1bl)+1bl	Modern shaped out. Good castings				Minor edge damage both sides
910	958	+	UM A44-1986					Bl & lower hilt, 2 pcs	493		48		Dk green	3-4 2R	Bad modern join. Bl corroded. Hilt repair				Bl looks OK but joined the wrong way around. Old hilt repair.
910	959	+	UM A9-1988					Complete (no tip)	605	28	52	528	Black	02-04-00	Damage on 1 sh. Hilt & sh accretion				Beading detail only at top of bl nr shoulder
910	960	Clontarf*	Dublin	UM A201-1965				Complete	587	41	53	700	Dk brown	03-06-00	Bl cleaned. Minor edge dam 1 side				Hilt outline visible both sides but incomplete
910	961	Tamlaght*	Armagh	UM				Complete. 5 pcs	605	44	53	528	Dk green	03-06-00	Twisted corroded bl. Damaged shs	By a metal detectorist in 2004 in a dried out marsh	Bz bowl; bx cup in fgt; small bx ring	Warner (2006)	Hilt in pieces. Ricasso rounded & undamaged
910	962	Toome*	Antrim	UM				Complete (no tang)	672	34	60	702	Brown	03-06-00	Superbly cast with fine ridings				Rivet holes 3.2 mm diam. Beautiful Gundlindun weapon.
910	963	Ulp*	UM A12558					Bl & shs	440	36	56		Dk brown	7-2	Modern wood on holes hilt. Worn bl				
910	964	Knock Abbey*	Louth	Dundalk 1995-15	O'Reilly			Complete (no tang)	545	34	61		Dk brown, cleaned	SI 4	Light castings. Raised hilt outline	Label: From Knock Abbey. Given by O'Reilly family, Knock Abbey			Raise hilt outline, central rib & thin shoulder section suggest FAKE
910	965	Knocknacloy	Tyrone					Lower Hlt, shs & up bl	192		39		Dk brown	3x (1bl)-2	Good hilt casting	Old label on bl reads '54'			
910	966	Ireland*	Leeds D1964.0278					Shs & upper bl	280		62		Dk khaki	7.2 (+26)	Twisted blade. B2D Tracking on bl				
910	967	Ireland*	Leeds D1992.0102					Bl & shs	454				Dk brown		Very rough. Modern join. Lat section				
910	968	Ulp*	NMI 1979					Upper bl & hilt	132		50		Khaki	7-2	Rough hilt casting	From turf cutting machine. Death unknown			
910	969	Derrinohady*	Tipperary	NMI 1985-67.1				Bl fgt	256	32			Dk khaki		Bevels bent & edge damage. H&C point				From turf cutting machine. Death unknown
910	970	Derrinohady*	Tipperary	NMI 1985-67.2				Blade & lower hilt	256	42	51		Dk khaki	7-2	Heavy hilt. Extensive damage both sides	Acquired from National Library 22/9/67 where it was rediscovered			
910	971	Allenstown Deemster*	Meath	NMI 1967-217				hilt	425		53		Dk brown	2.6-3R 3 diam	Clean blade, worn edges. Dished hilt edges	NMI index has 'found in lake'			
910	972	Lough Gil*	Sligo	NMI 1987-116				Complete	625	27			Dk green		Corroded blade and edges	Label reads: Found at Doon, Gort, Galway. Presented by Mr Matthew Wallace			
910	973	Gort*	Galway	NMI 1965-81				Blade	401	27			Dk green		Corroded blade and edges				
910	974	Family*	Monaghan	NMI 1985-186				FAKE											
910	975	Ballyvaughan*	Monaghan	NMI 1965-165				Complete. 2 pieces	235	32			Khaki		Surface partly cleaned	Acq from Major Stanley @ Carrickmacross			
910	976	Kiltoon*	Westmeath	NMI 1968-437				Complete. 2 pieces	486	32	42		Brown	3 (+26)	Edges and surface corroded	NMI index: from the Kiltoon shore of Lough Derravaragh			Note tab on terminal
910	977	Castledillon*	Westmeath	NMI 2010-286				Complete. 2 pieces	549	48	58		Dk khaki	SI 4	Widespread accretion, good beneath	NMI index: 'like fishing near crannog'			Accretion to be removed by NMI Conservation, Collins Barracks
910	978	Rosham*	Leitrim	NMI L1936-1				Complete	647	48	47		Dk brown	2x (1bl)-2 (+4bl)	Shiny surface. Sh holes inconsistent				May be replica as blanks look like cast in remnant rivets. Why did E miss this sword?
910	979	Lough Cloon* (Anne?)	Offaly	NMI 2004C1-331				Complete	442	34	42		Brown	03-04-00	Concrete accretion 1 side, s/w sword	NMI index has Lough Anna			
910	980	Lough Cloon*	Offaly	NMI 2004C1-334				Blade fgt	265		30		Green & dk brown		Rough surface				
910	981	Ashfordony*	London	NMI 1965-69				Bl fgt made into scabb	340	28			Dk khaki		Good blade. Modern handle				
910	982	Ulp*	NMI E92-408	Chapman				Blade fgt	270	30			Dk brown		Blade in two pieces				
910	983	Ulp*						Hilt fgt	59				Khaki		Shiny surface	23.9.29 (find date) on blade. E (1983): 'Found in a quarry on 6/3/28'			Waddell (1978); Eogan (1963) Hoard no.98
910	984	Drumany O'Brien*	Leitrim	NMI 2012-38				Blade fgt	61				Khaki		Shiny surface	E (1983): 'Found in a quarry on 6/3/28'			Waddell (1978); Eogan (1963) Hoard no.98
910	985	Drumany O'Brien*	Leitrim	NMI 2012-39				Blade fgt	63				Khaki		Shiny surface	E (1983): 'Found in a quarry on 6/3/28'			Waddell (1978); Eogan (1963) Hoard no.98
910	986	Ulp*	Lim(hunt) HCA373					Complete (no tip)	546	43	47		Dk khaki	2x (1bl)-4R 3.5 D	Rough surface, some bad	Circumstances of acquisition u/k			Dashed rivet holes and hilt flanges. Accretion around rivets
910	987	Ulp*	UM A7034					Complete	518	37	45	350	Brown	2-2 2R	Accretion both sides, off white	Earlsack			Accretion thus corroded rivets which vary from 2 to 3mm diameter

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
710	992 Kilby*	Offaly	NMI E499-988H					Upper 1/2 & hilt 1/2	174				Dark khaki/green mottled	7.2R	She damaged. Dashed flanges				
711	993 Kilby*	Offaly	NMI E499-988Q					Bl 1/2	233	32			Khaki		But all pieces				
712	994 Kilby*	Offaly	NMI E499-988					9 x 12 ribs											
713	995 Athlone and Big Meadow	Roscommon	NMI 1987-440																
720	996 Unp* Poss Egan		Lm(Hunt) HCA376					Complete	737	34	60	764	Brown	1/4 x 1/2 1R 4 diam	Green accretion	Circumstances of acquisition uk			Bl Shape, section (fine ridging) & hilt seem very Egan
721	997 Unp*		Lm(Hunt) HCA374					Hilt, sha & upper 1/2	170		41		Dark brown	2/4 x 1/4 1R 2.8 d	Some surface accretion	Circumstances of acquisition uk			
722	998 Unp*		Lm(Hunt) HCA377					Bl 1/2	31	36			Brown			Circumstances of acquisition uk			
723	999 Kilrush*	Limerick	Lm(Civ) 1986-175					Complete	482				Smooth dk green	2, poss 4	Edges badly corroded	Circumstances of acquisition uk. Lin online cat has Kilrush-Cloonsacken			Lacquered. Beautiful lozenge cross section
724	1000 Merist*	Galway	Galway E269-11					Complete	673	30	56	582	Khaki	2.4 1R 3.5 D	Modern solder on hilt. Poss old join on hilt	MFound 1984 by Mr P Griffin, nr lake S of graveyard, N of castle	Rymer (1984), 5-26, fig.11		Nice HaC sword, good condition. Dashed hilt edges
725	1001 Killbeg*	Clare	NMI 1974-30					Complete	600	37	52	552	Khaki	03.04.00	Pitted surface, green but. From blade				
726	1002 Killee*	Clare	NMI 1966-104					Complete	55	30	43	402	Khaki	1/4 x 1.14+1/2	Cleaned, pitted surface, cast on repair				
727								Complete apart from left shoulder							Complete except for left shoulder but very worn; brown patina with bronze surface showing through especially on lower blade. Broad flanges on grip. 2 rivet-holes in grip with traces of a central unperforated hole. 2x2 rivet holes of unequal size in shoulders. Broad midrib tapering to point at lower grip rivet-hole. Cutting edges sharp with some notches.	Purchased from G F Williams, 22 Heath Gate, London NW11, 28 September 1960 for £25.			
728	1003 Unp	Ireland	Burrell 4.2.73					Complete	464	38	41	373							
729	1004 Unp	Ireland	Glasgow 1902.73kh (Not available April 2014)	Anderson College				"Leaf-shaped blade, rivets surviving."	600										
730								Complete except for very tip of blade	518	33	44	465			surface worn; brown patina. Well-defined flanges from butt to shoulders, distinct ricass. 3 rivet holes in grip. 2x3 in shoulders; lowest rivet in grip survives complete, lowest left shoulder hole open, other filled by remains of broken rivets. Broad midrib tapering to point immediately below lowest grip rivet. Cutting edges sharp but worn with distinct notches in one edge.				
731	1005 Unp	Ireland	Glasgow 1902.73hl	Anderson College				Complete	406	28	34	348			Complete, very worn, edges eroded; brown				
732			GLAHM A.119												Born & Hansen Helme und Waffen Albuergas, Mainz, 2001, AG 75 & 1021, pp 120-30 & 274-5, Abb. 99 & 150/3				
733			Axel Gutman												Born & Hansen Helme und Waffen Albuergas, Mainz, 2001, AG 75 & 1021, pp 120-30 & 274-5, Abb. 99 & 150/3				

Bronze Age Swords in Ireland Catalogue



60/4/22

Good
100%
Sp. 100%

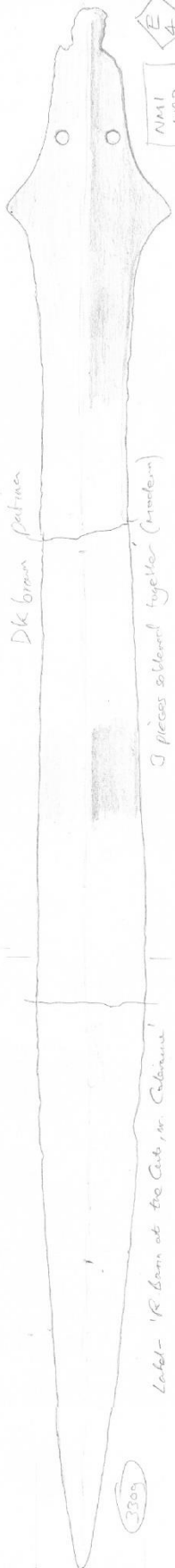
2309

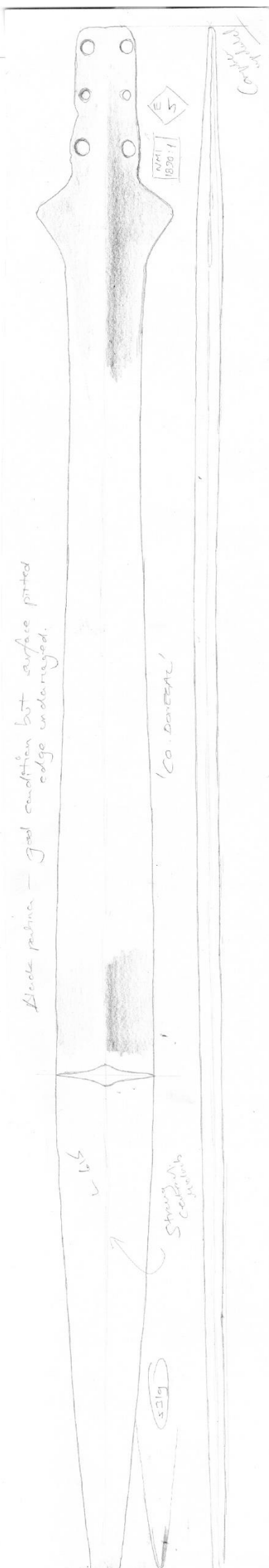
Label - 'R' Barn at the Gate, Mr. Colman's

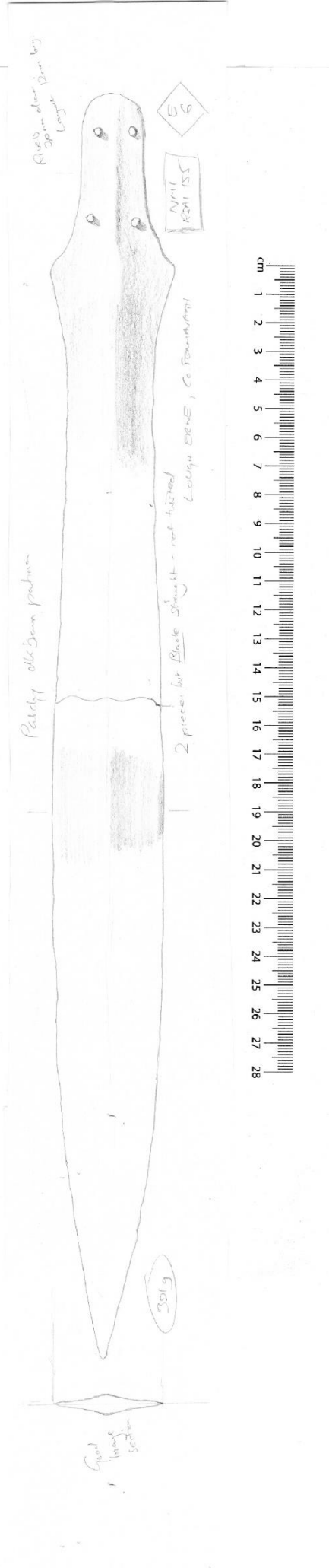
Dk brown patina

3 pieces soldered together (modern)

NMI
W23
E
4







08

Wink

20

W

Polard, Co. Fennish? A12557

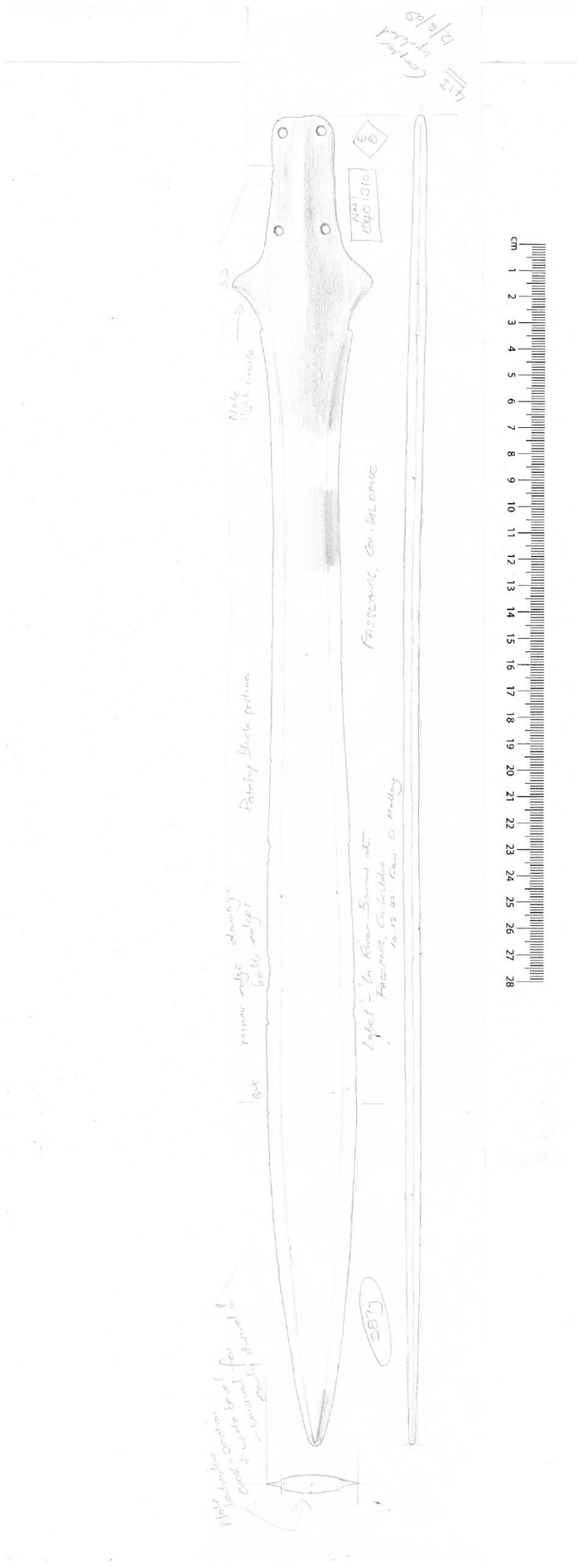
2009

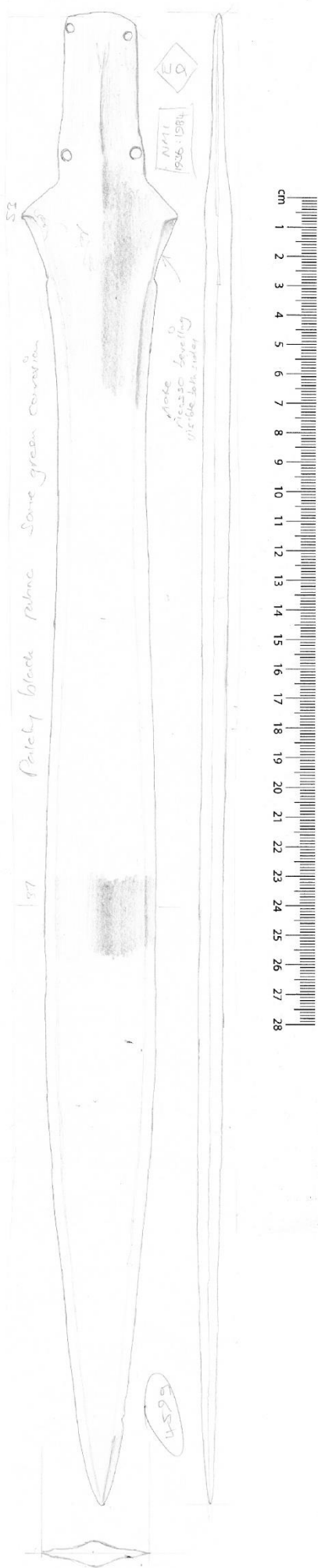
6029

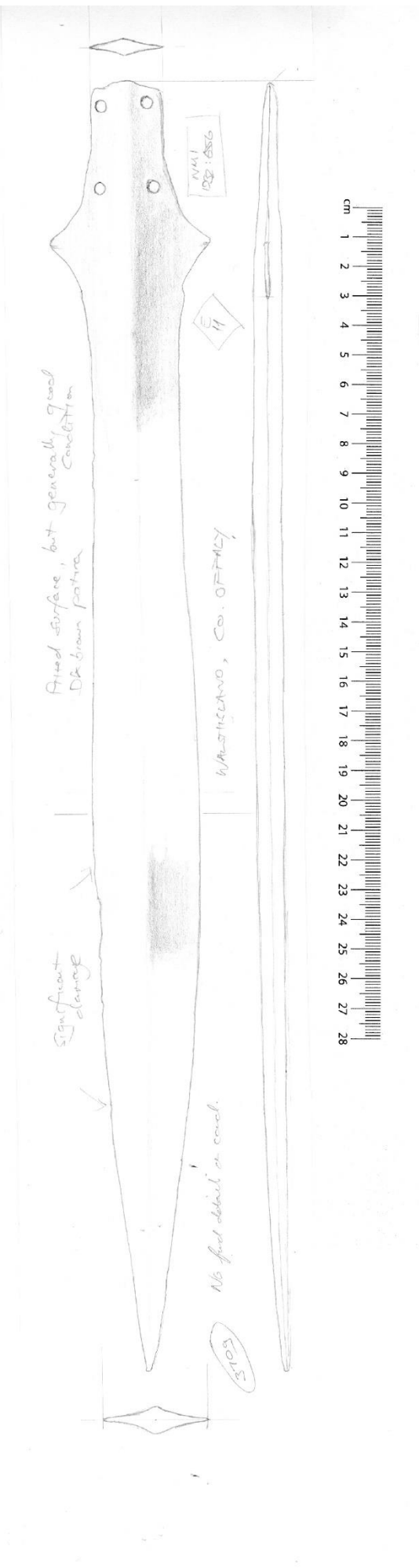
have grave worn
on this edge

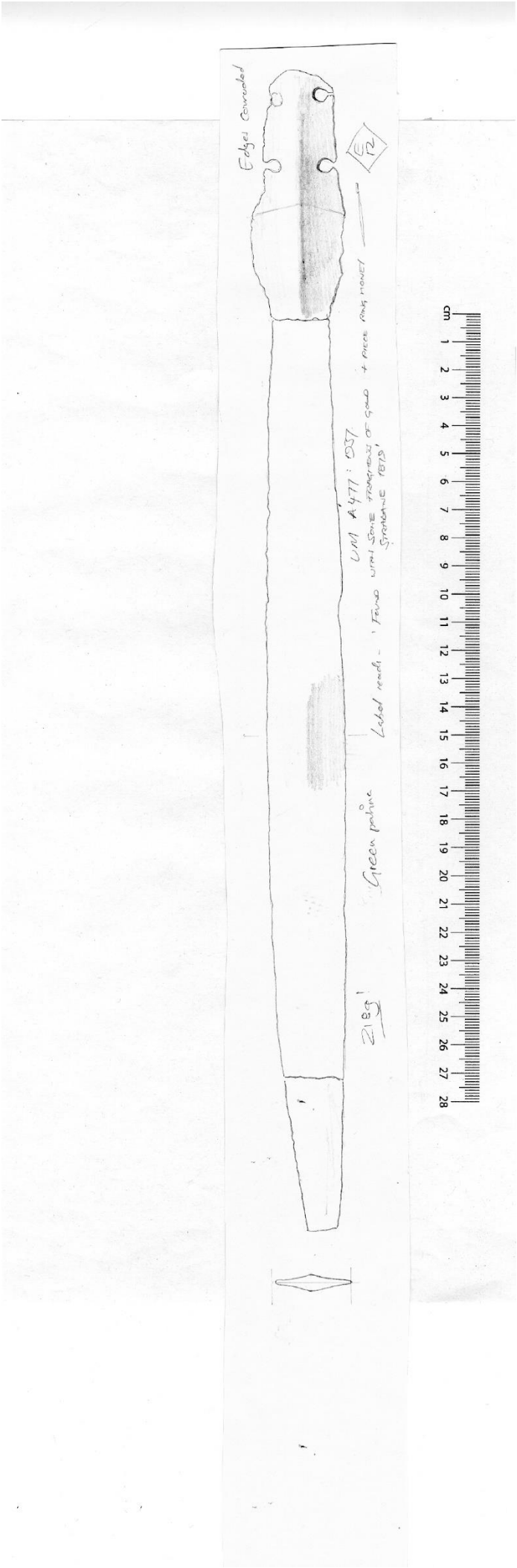
DK. Green feathers
warm inside

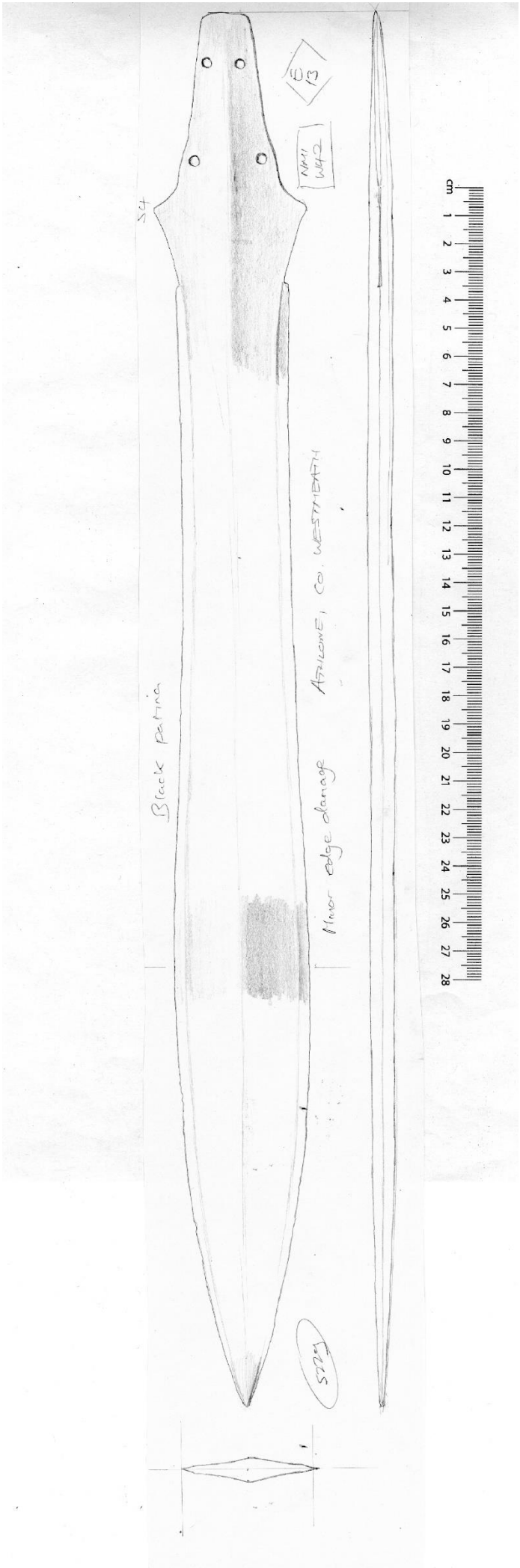


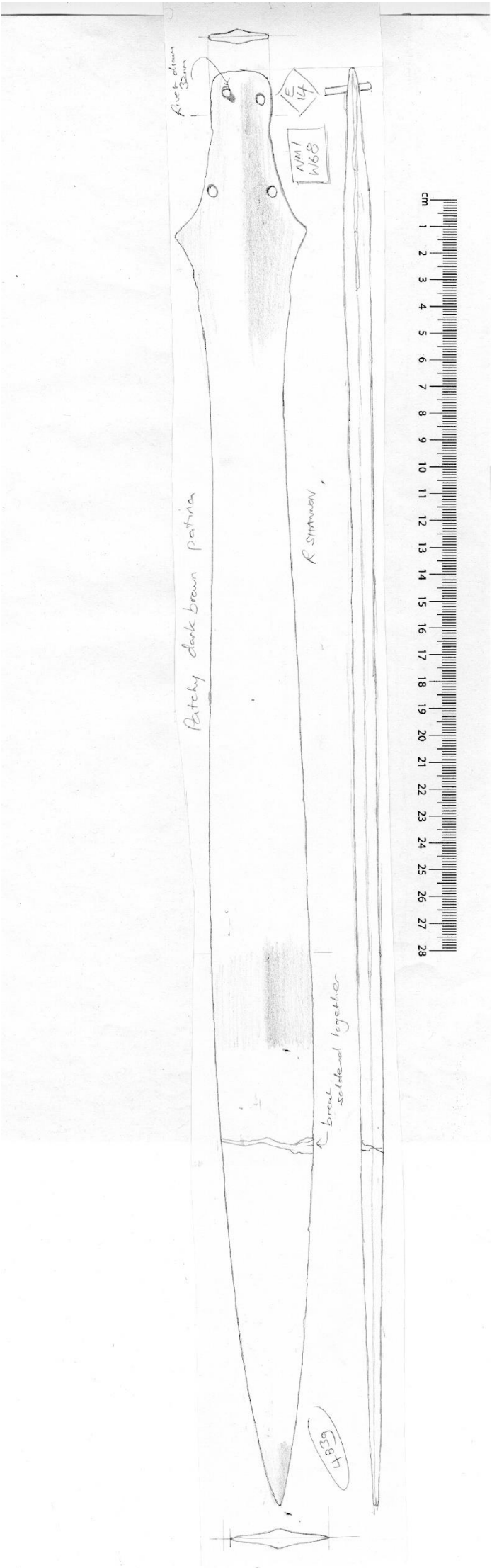


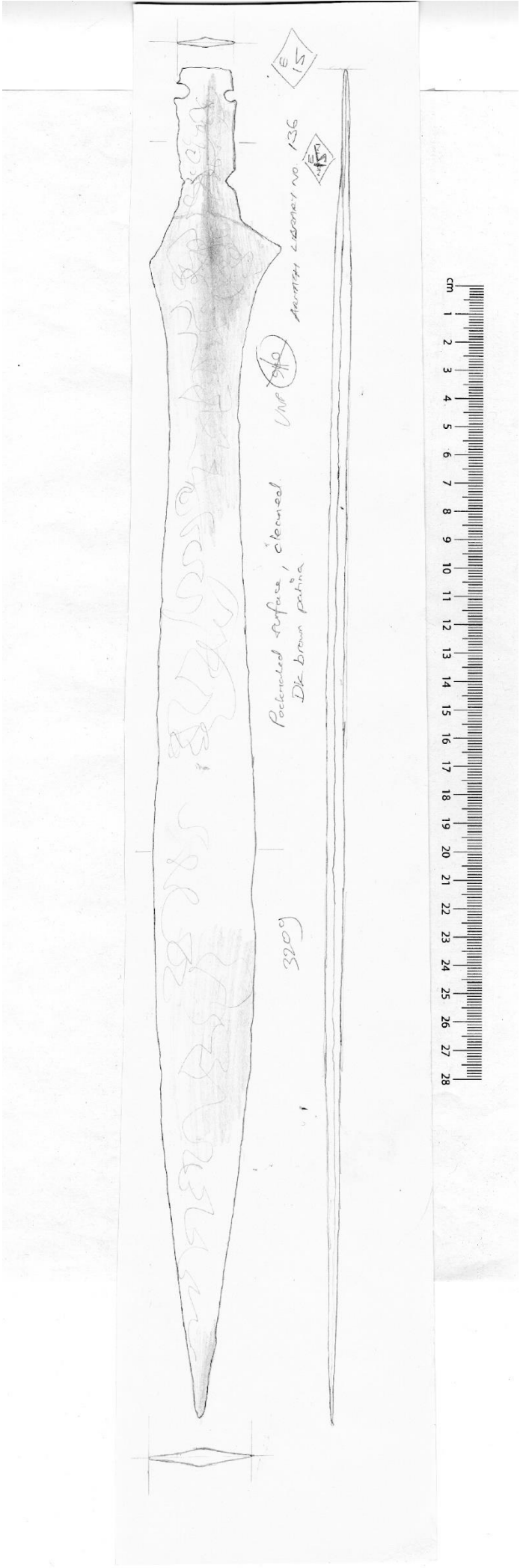


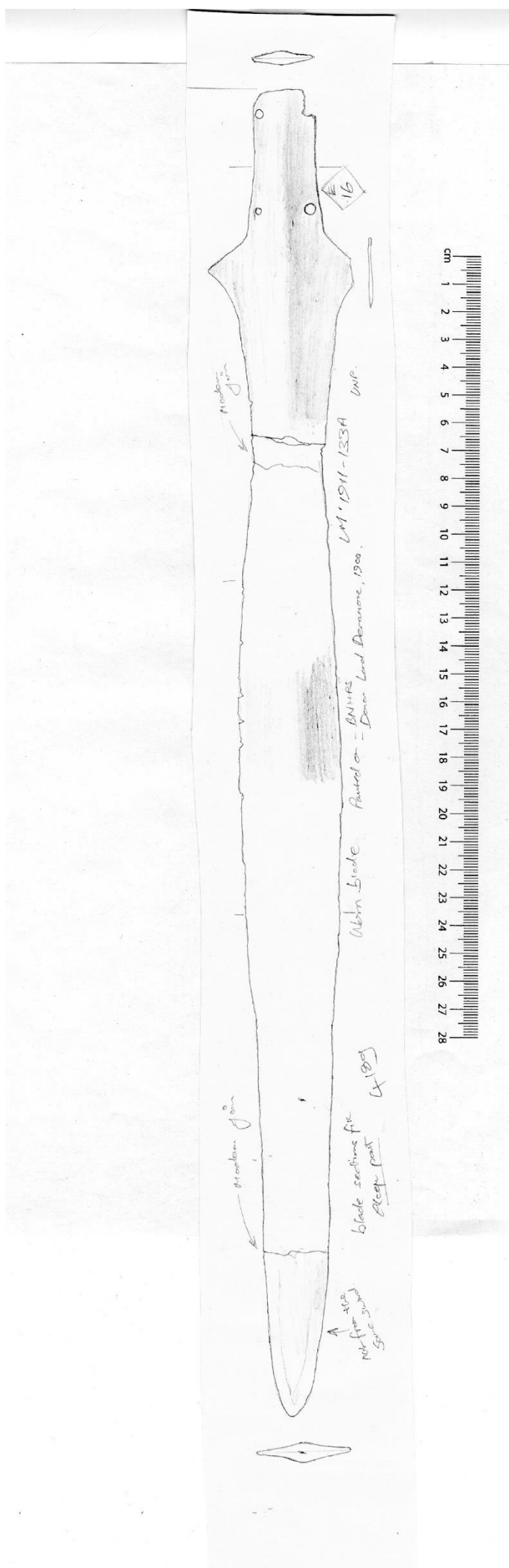


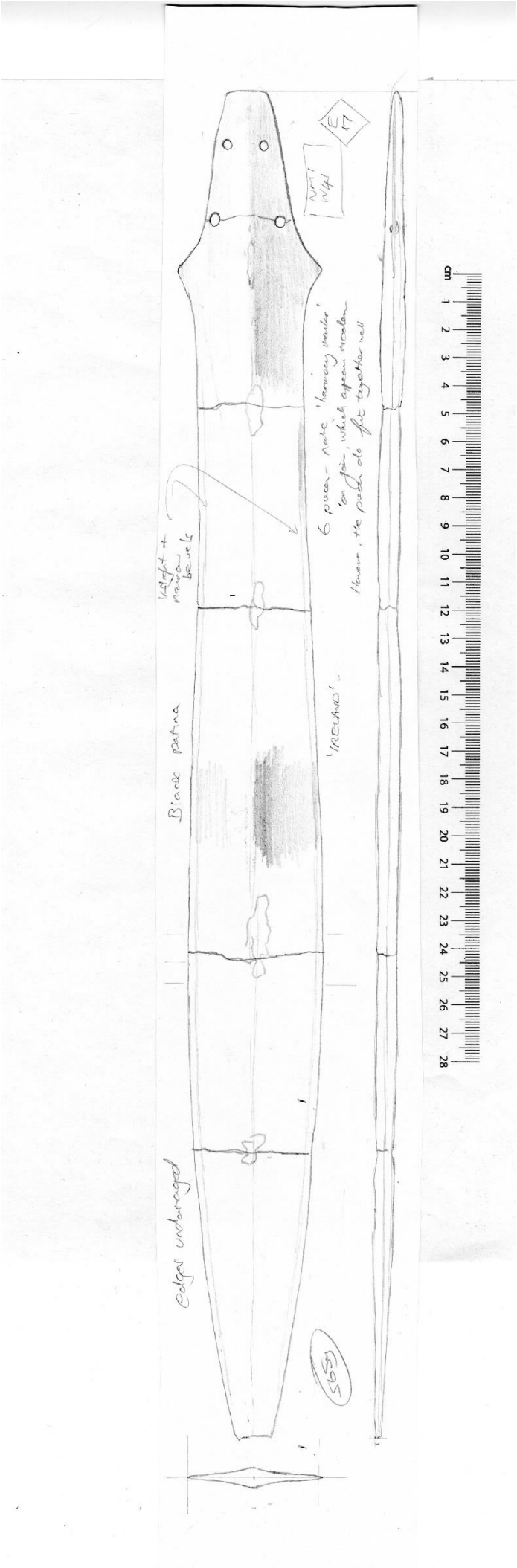


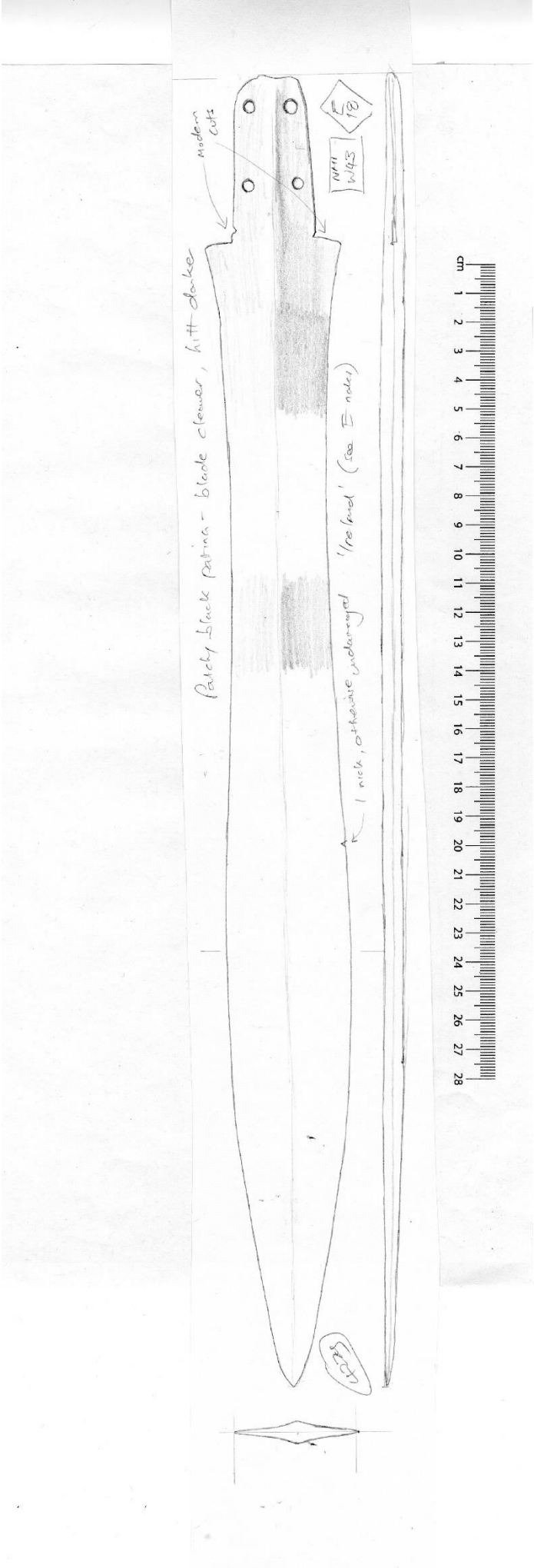


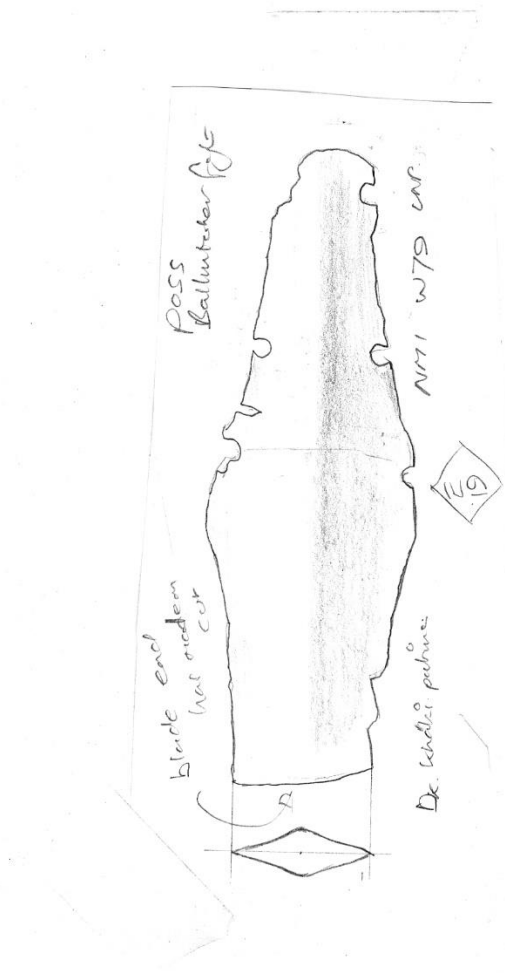


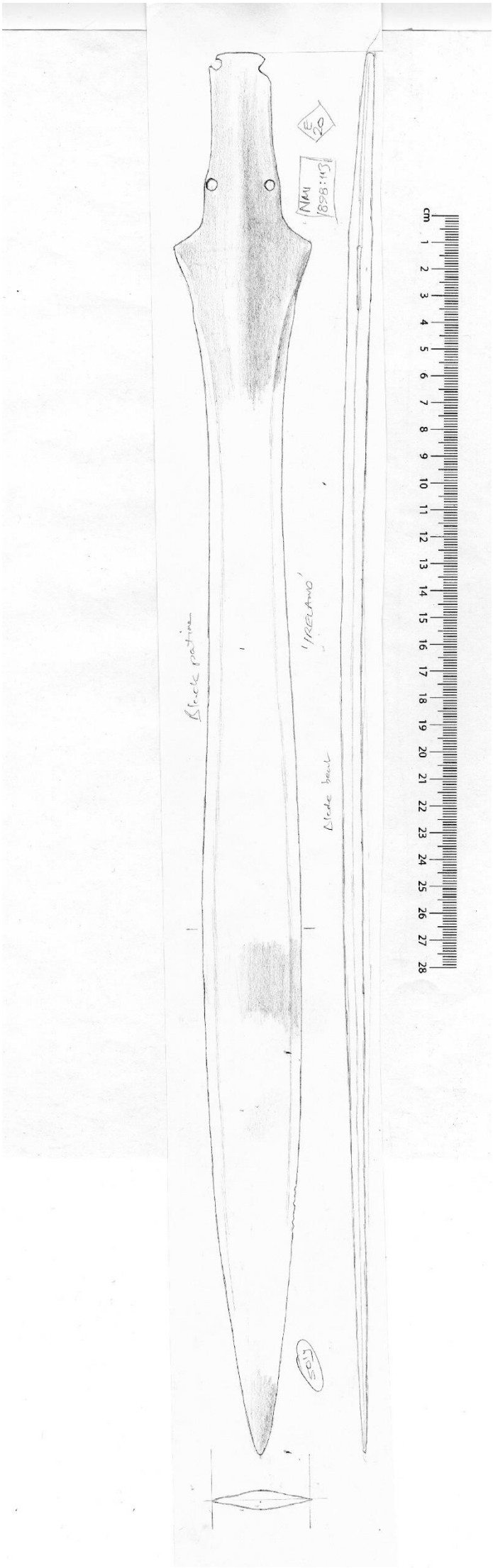




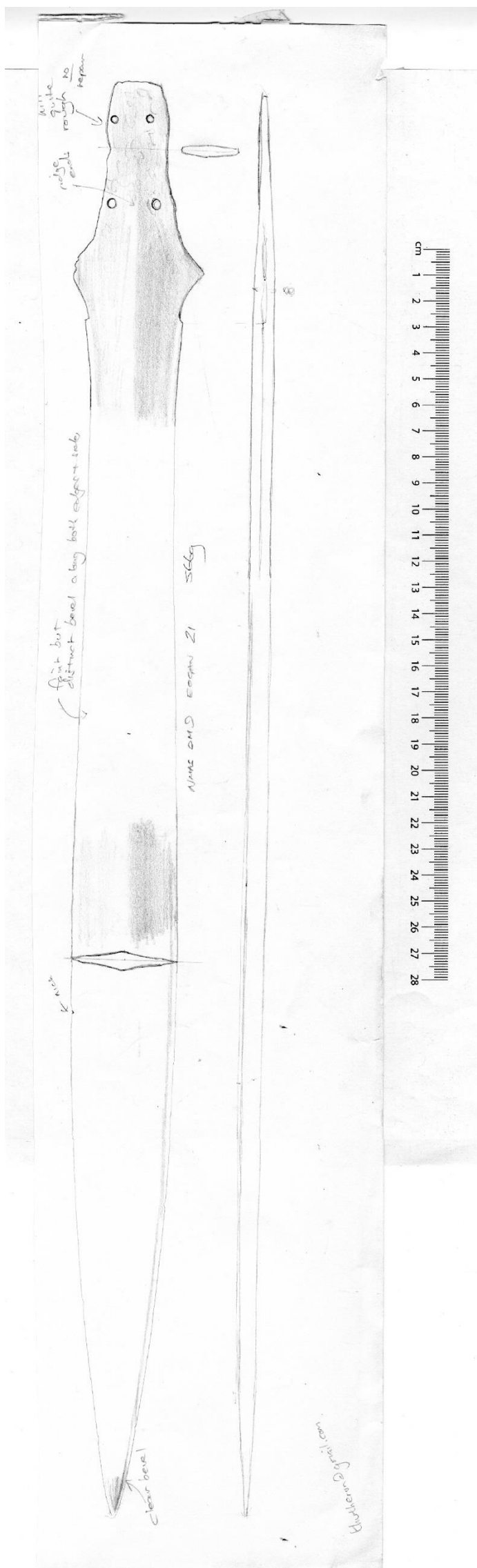


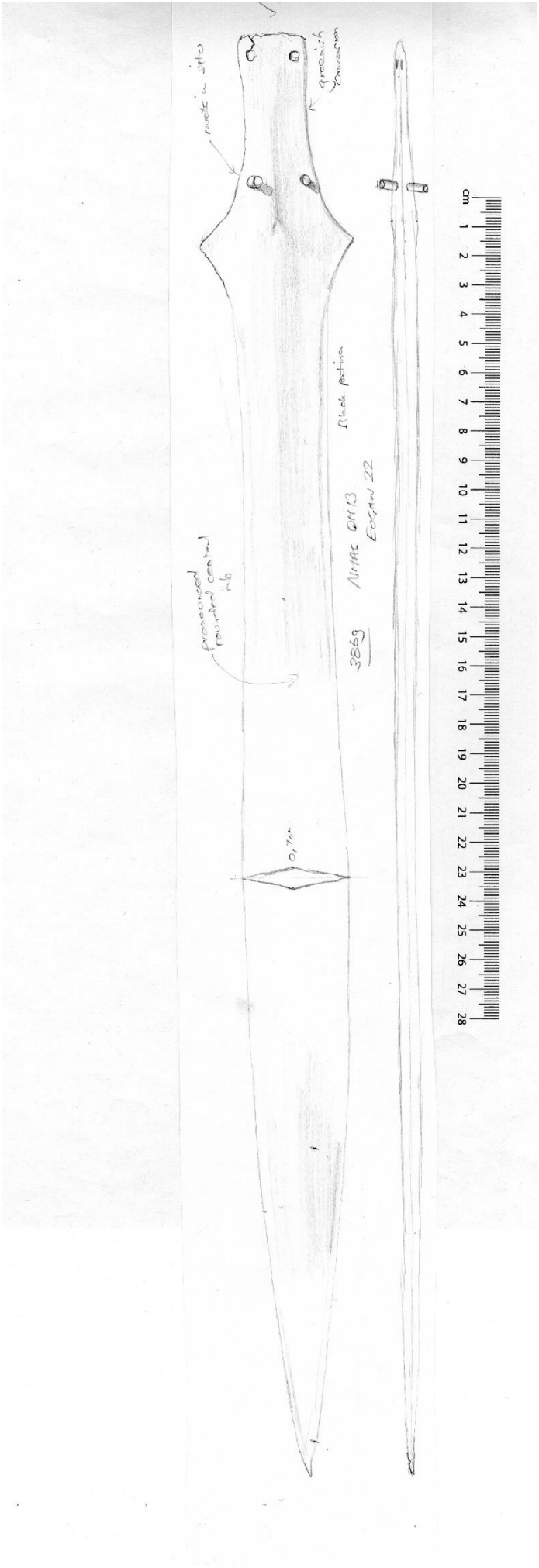


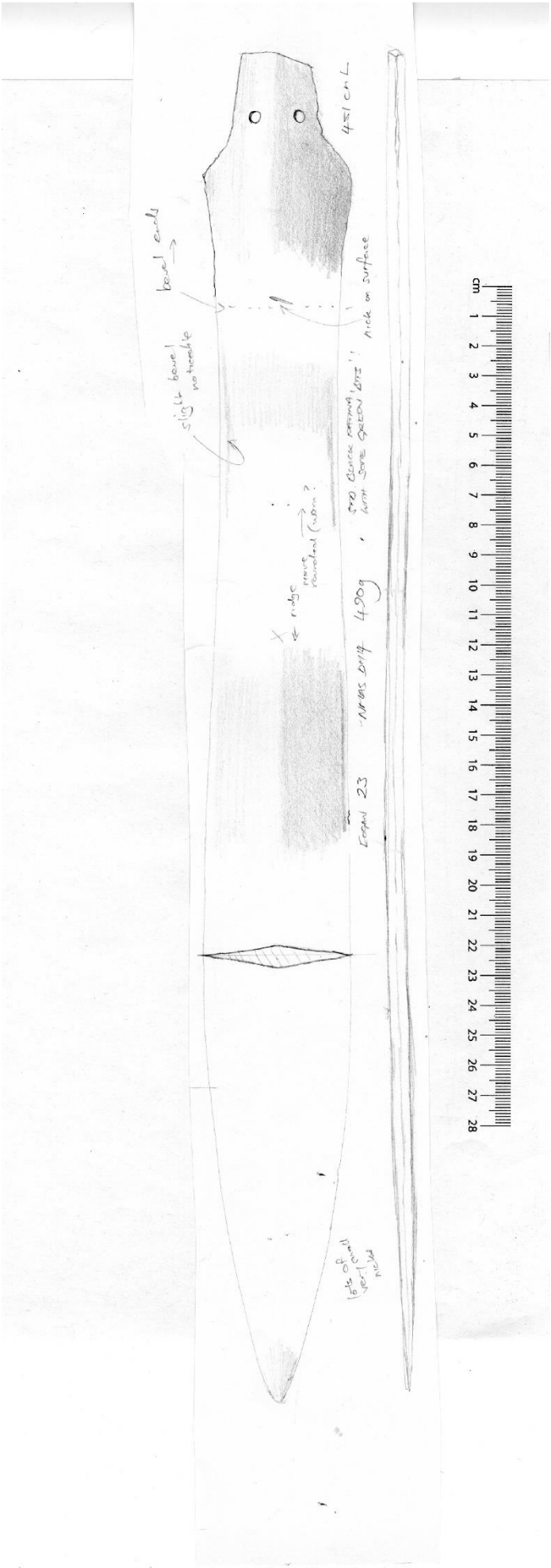


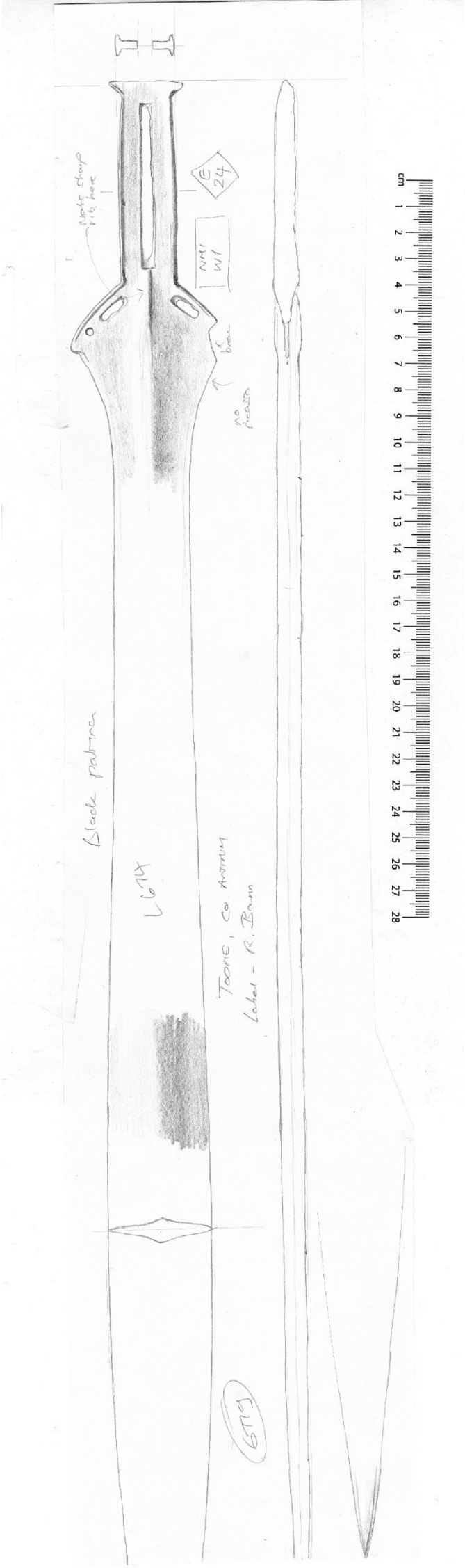


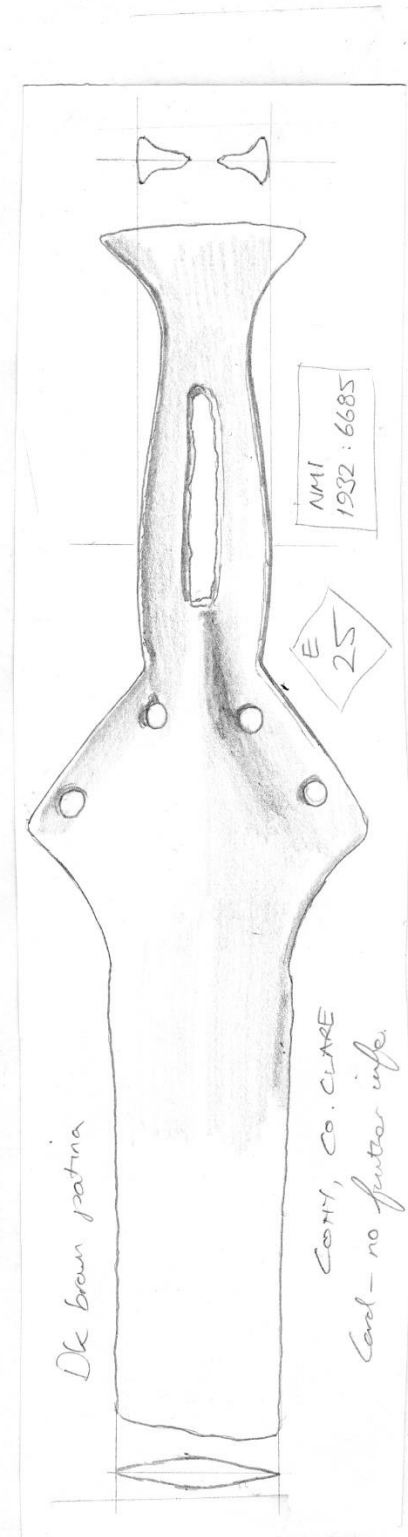
21

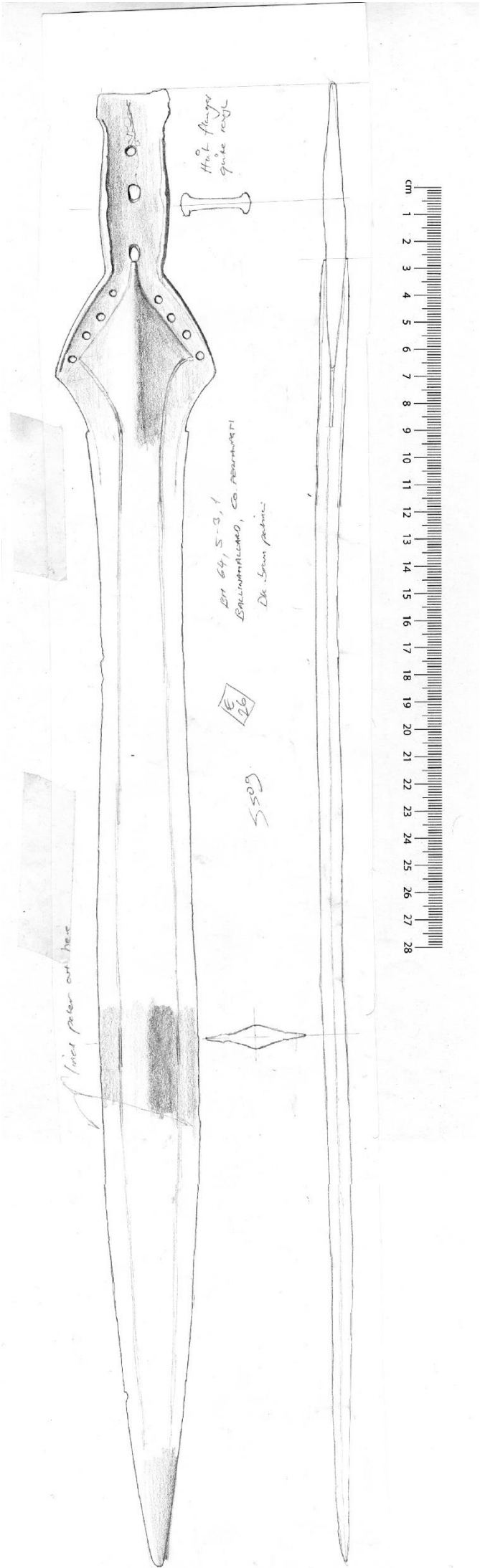


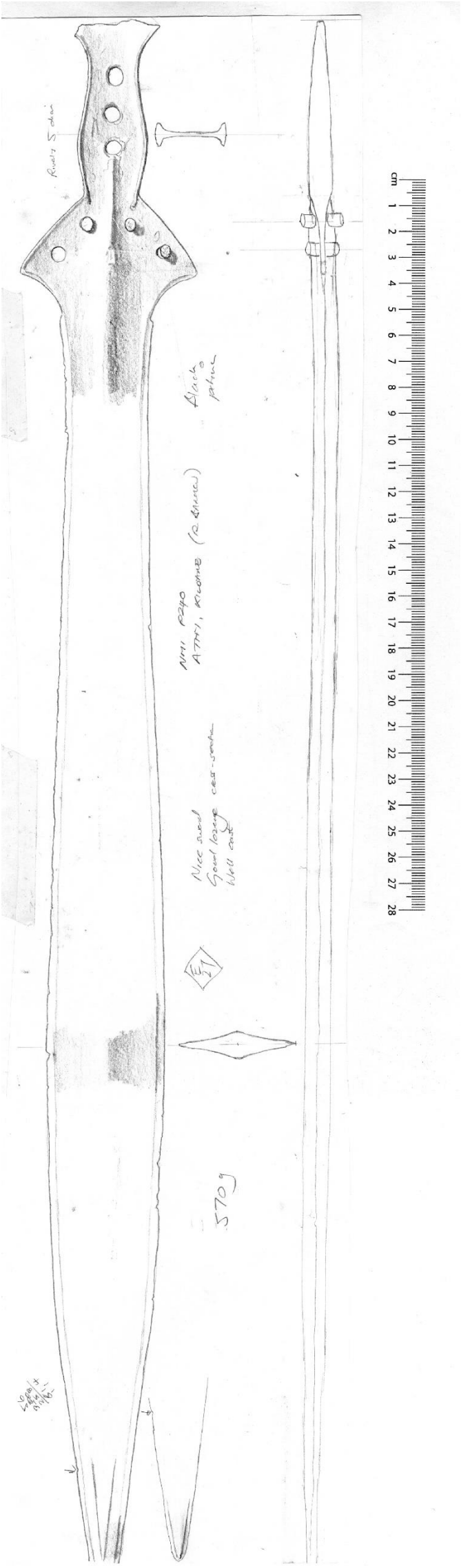


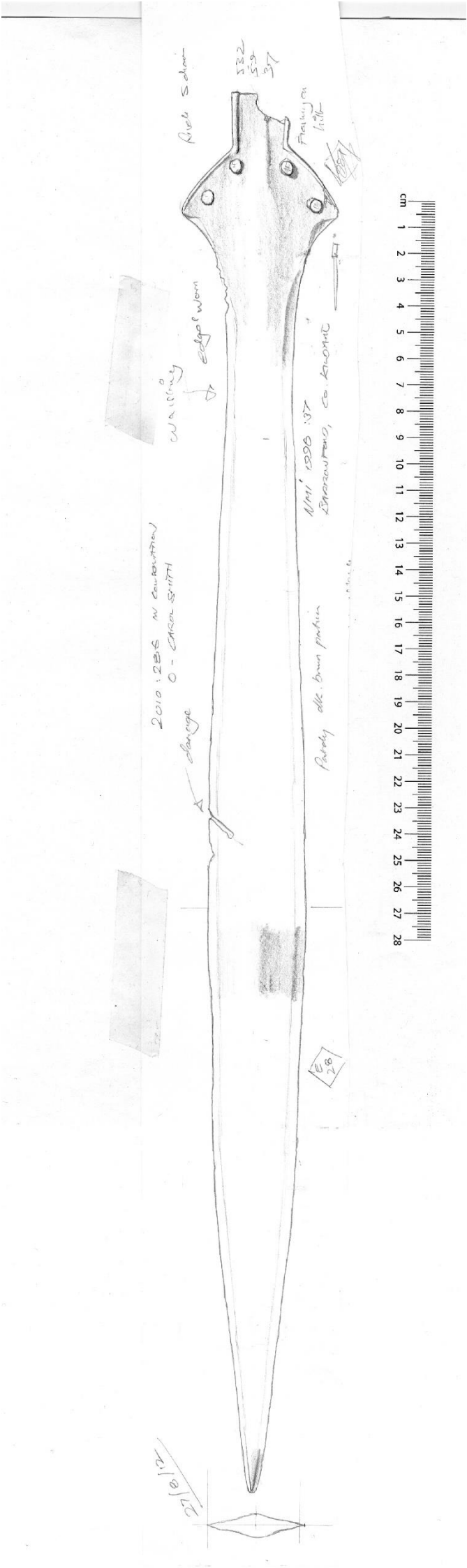


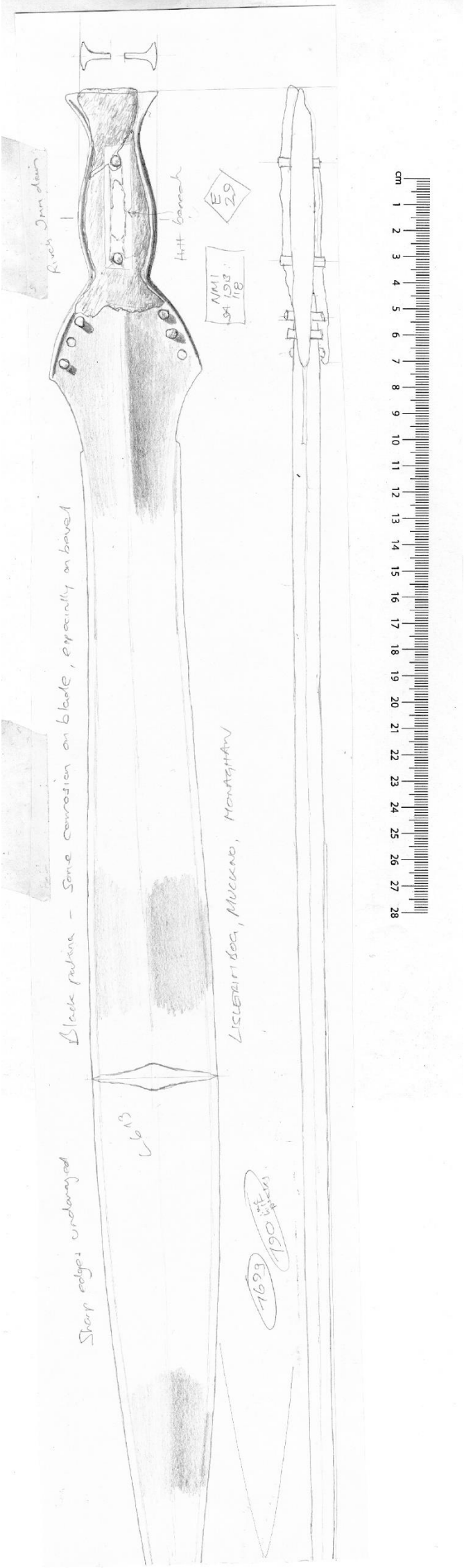


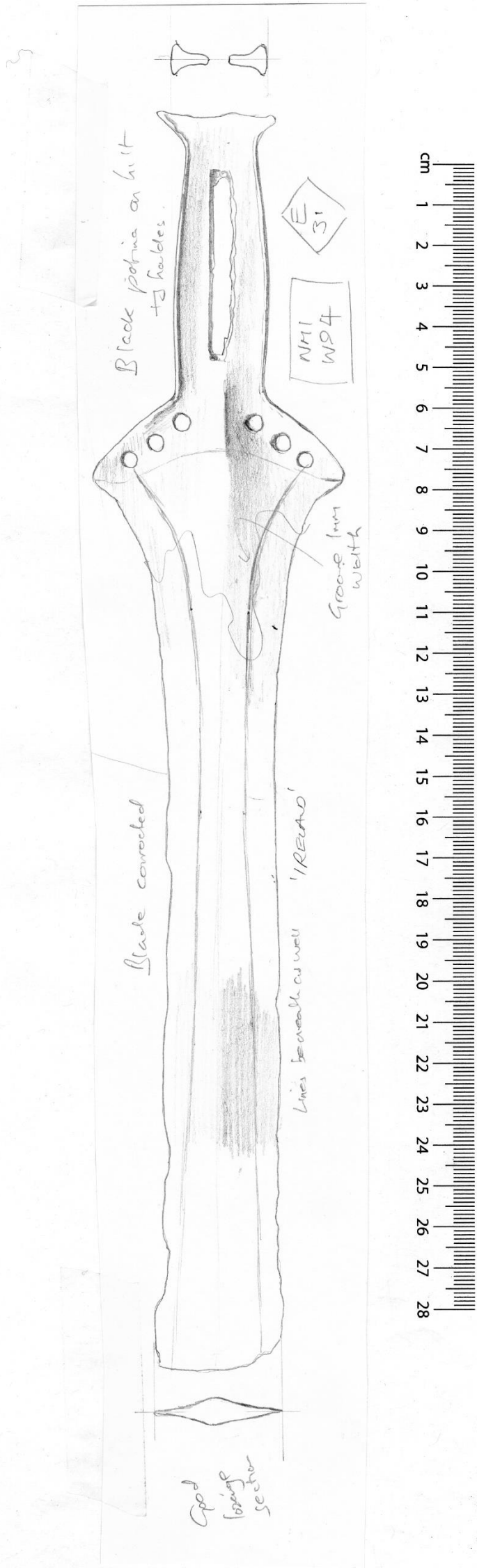




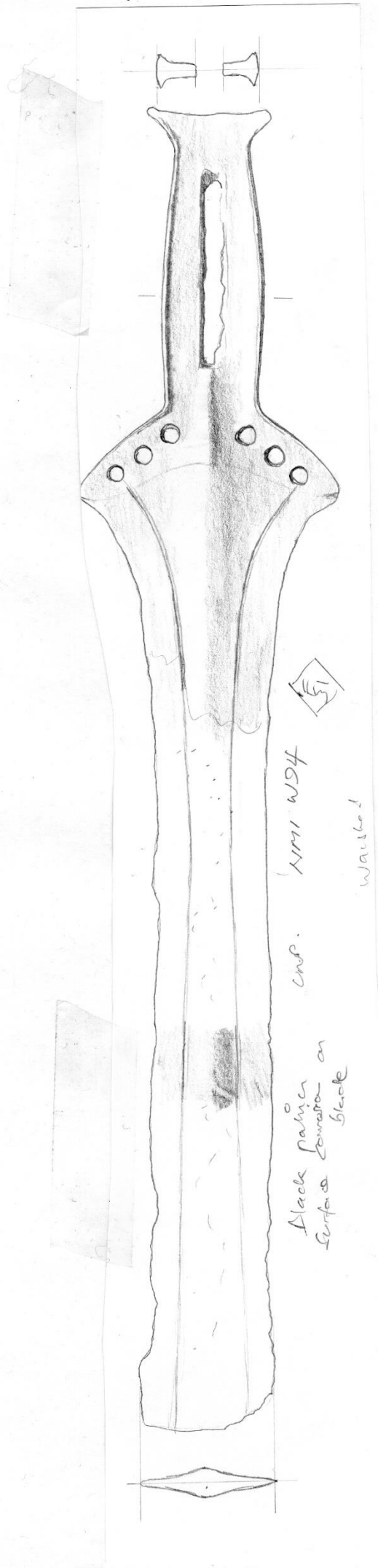








31 (2)



51

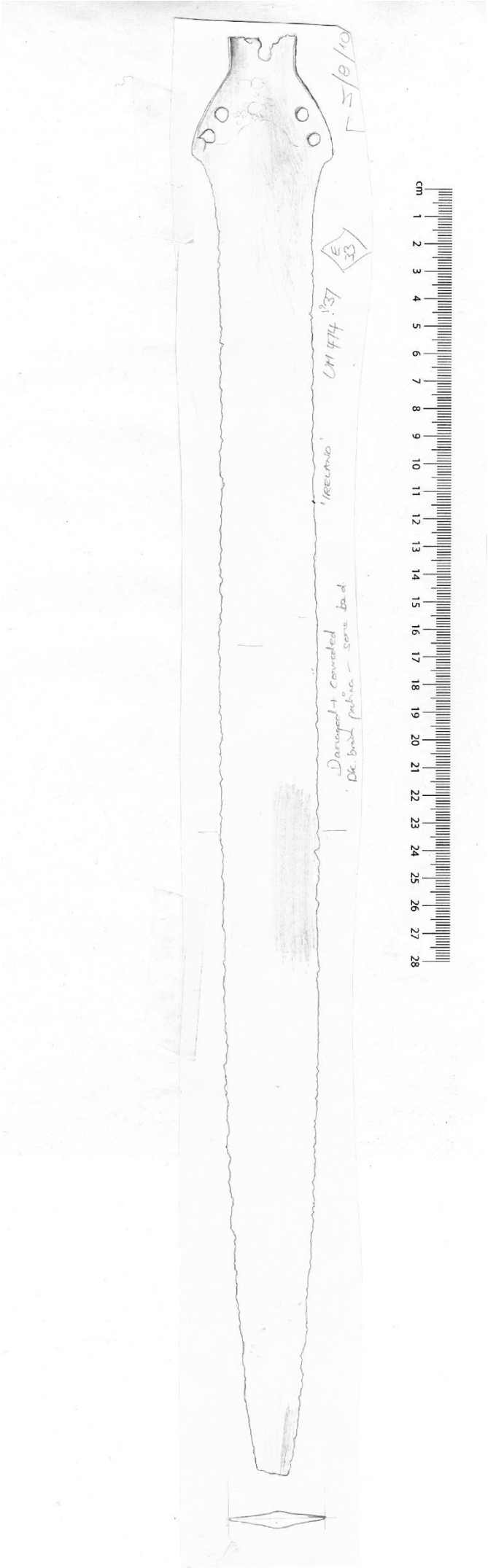
MM WD4

end.

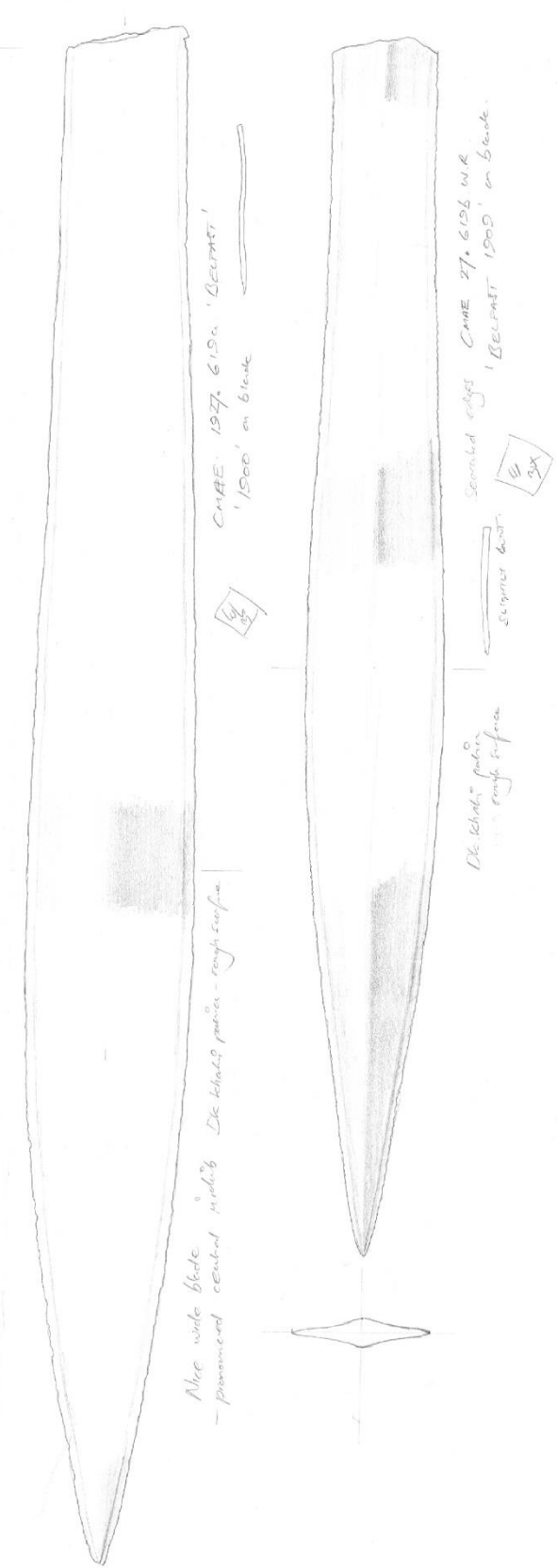
Black patina
surface brown on
black

Washed

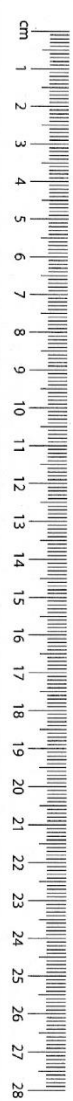


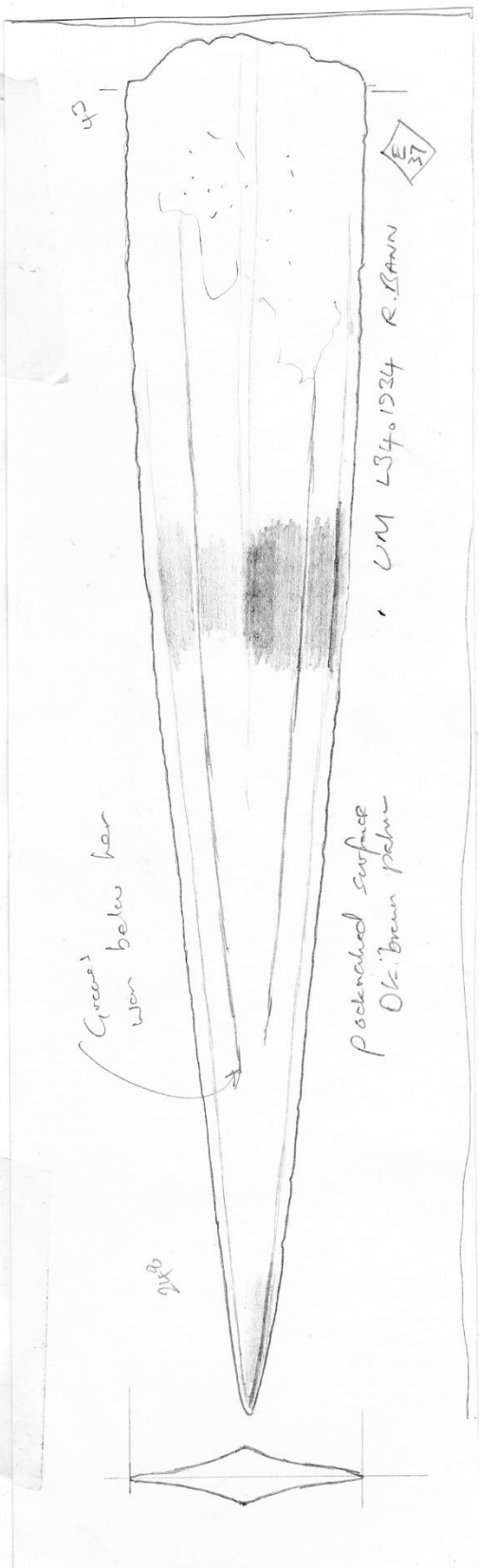


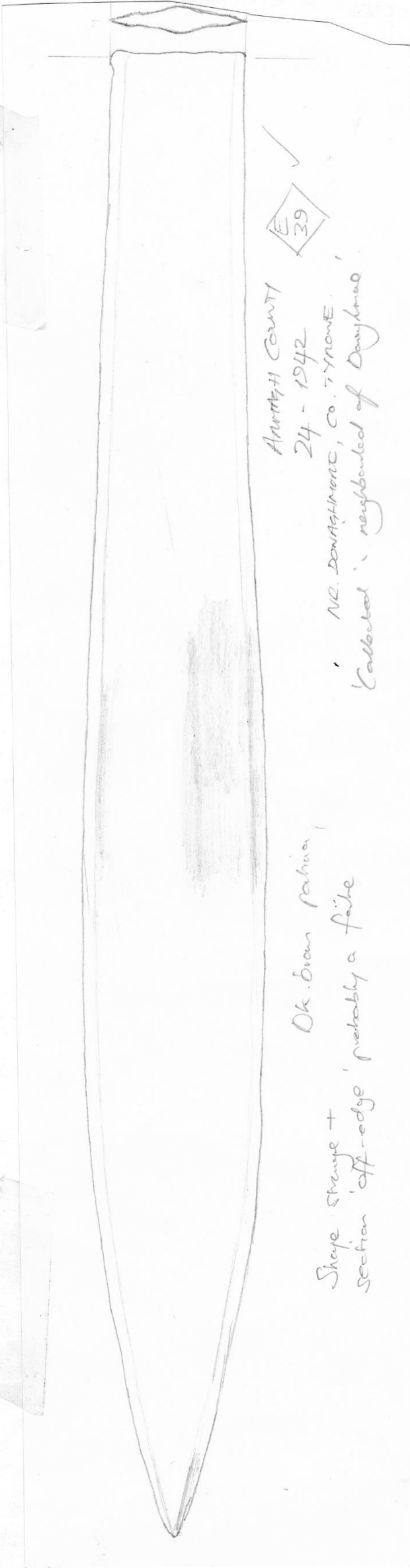
34 and 35



19/3/13
10/1/13
C. J. J. J.

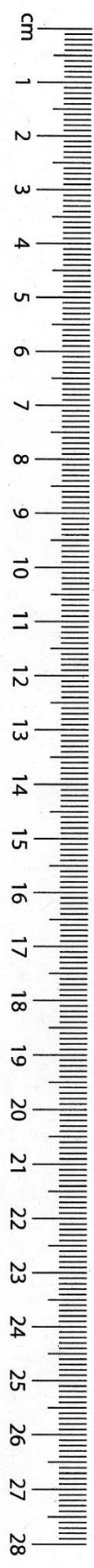


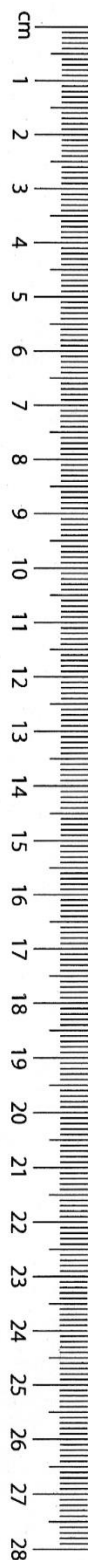
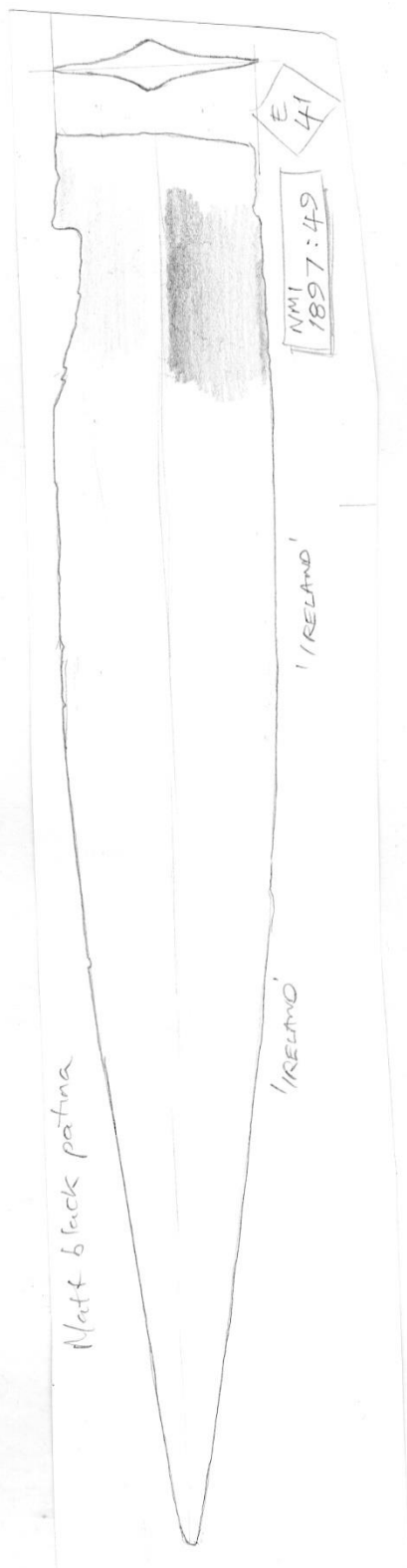


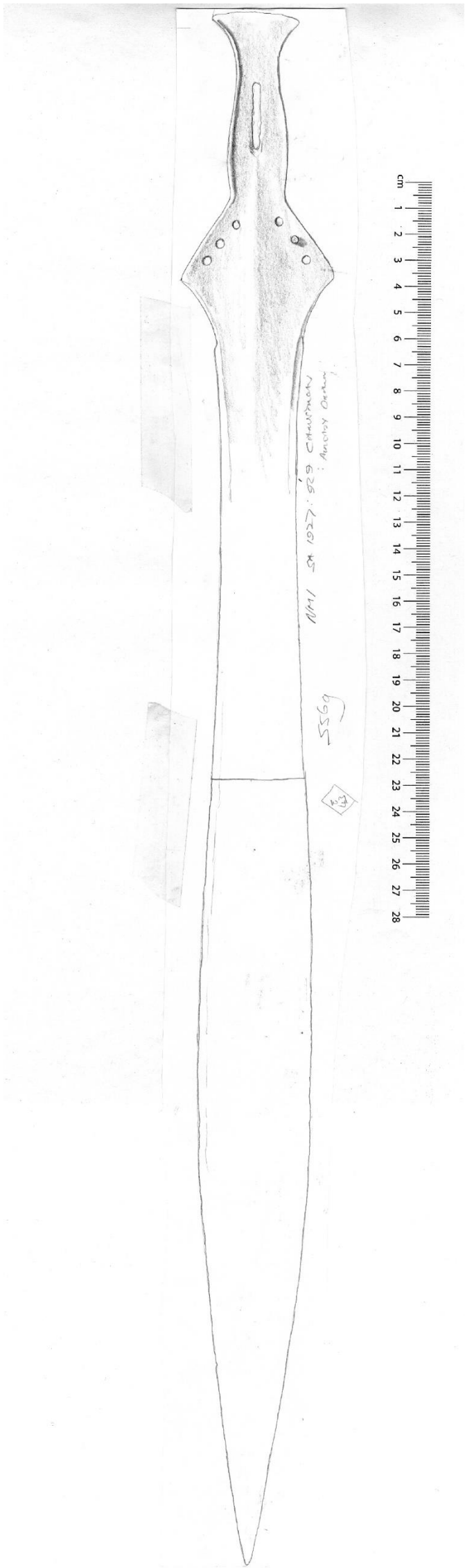


✓
E 39
Antrim County
24 - 1942
NR. Doughton, Co. 77moe
Collected - neighborhood of Doughton

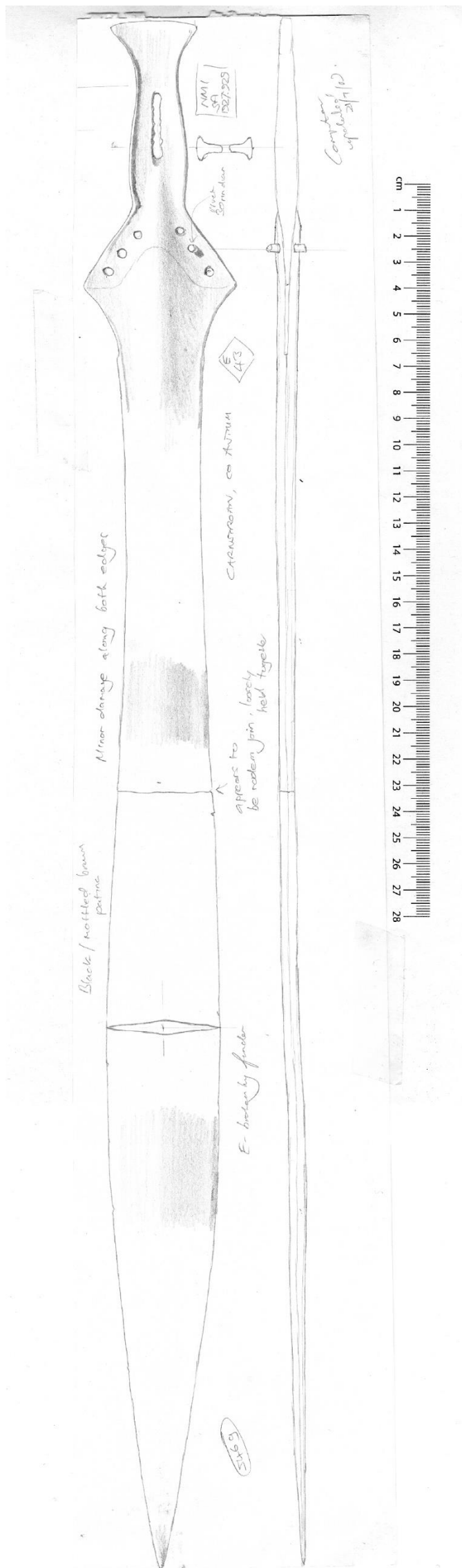
Ok. Brian Patrick
Shape strange +
section off-edge, probably a false

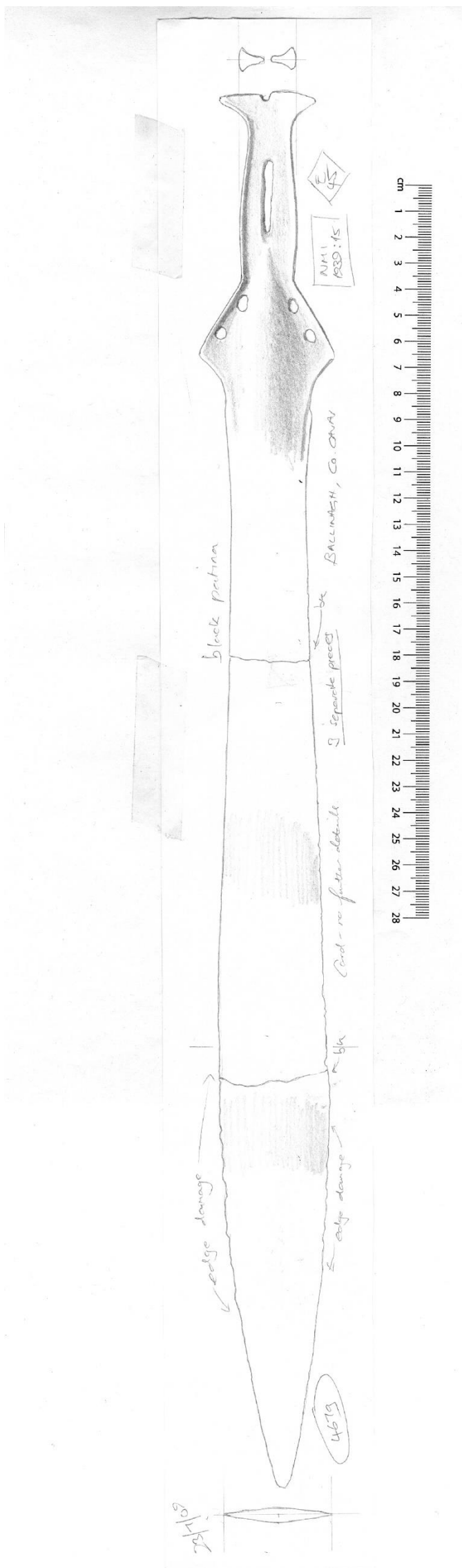


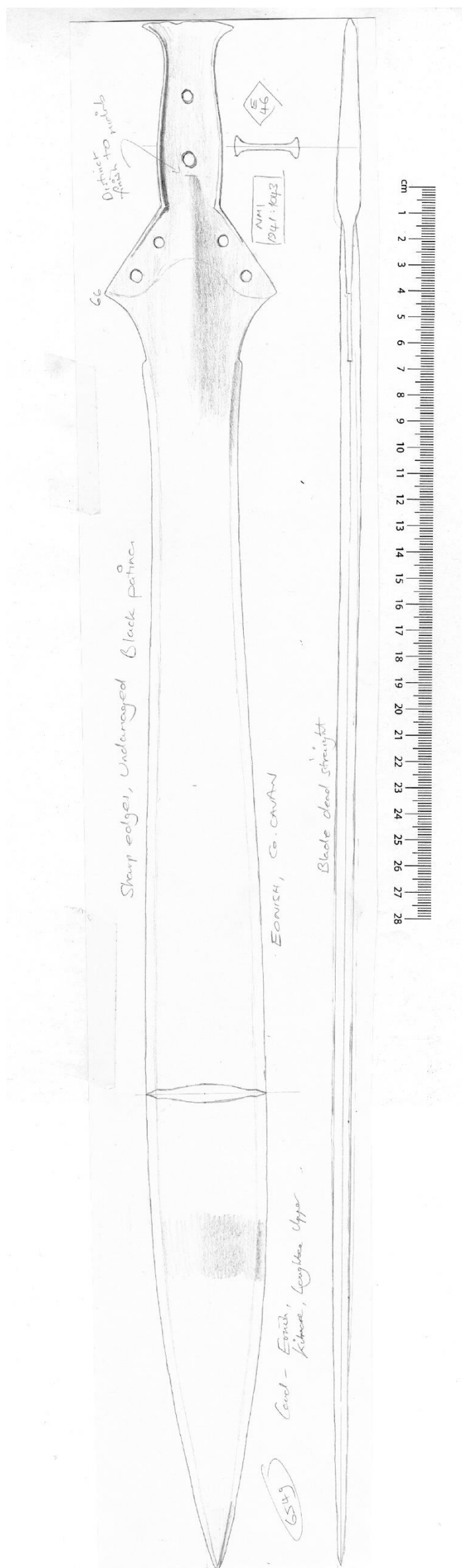


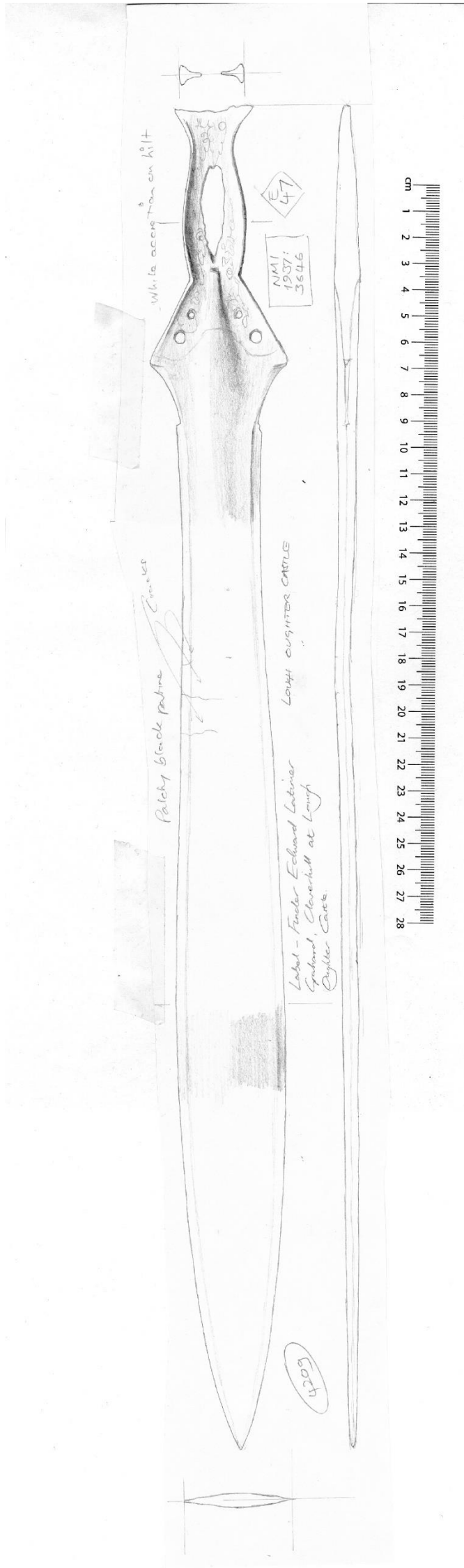


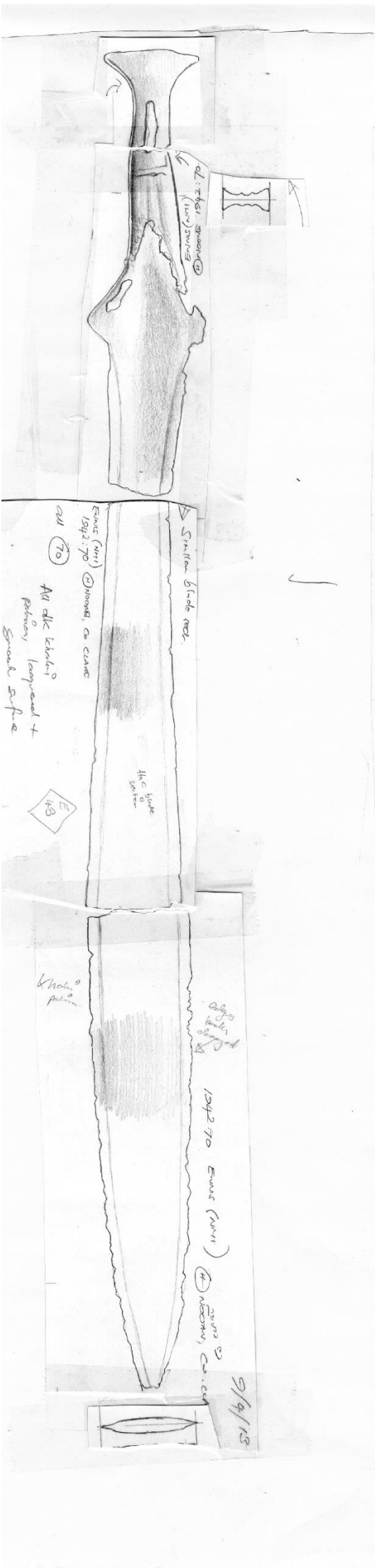
43(2)

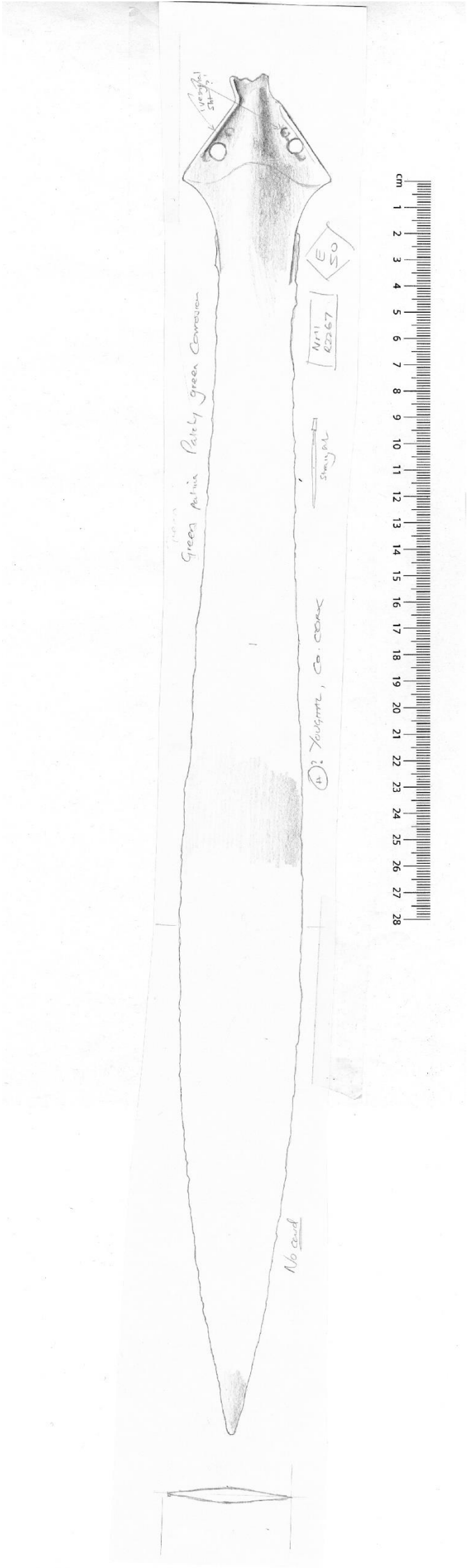


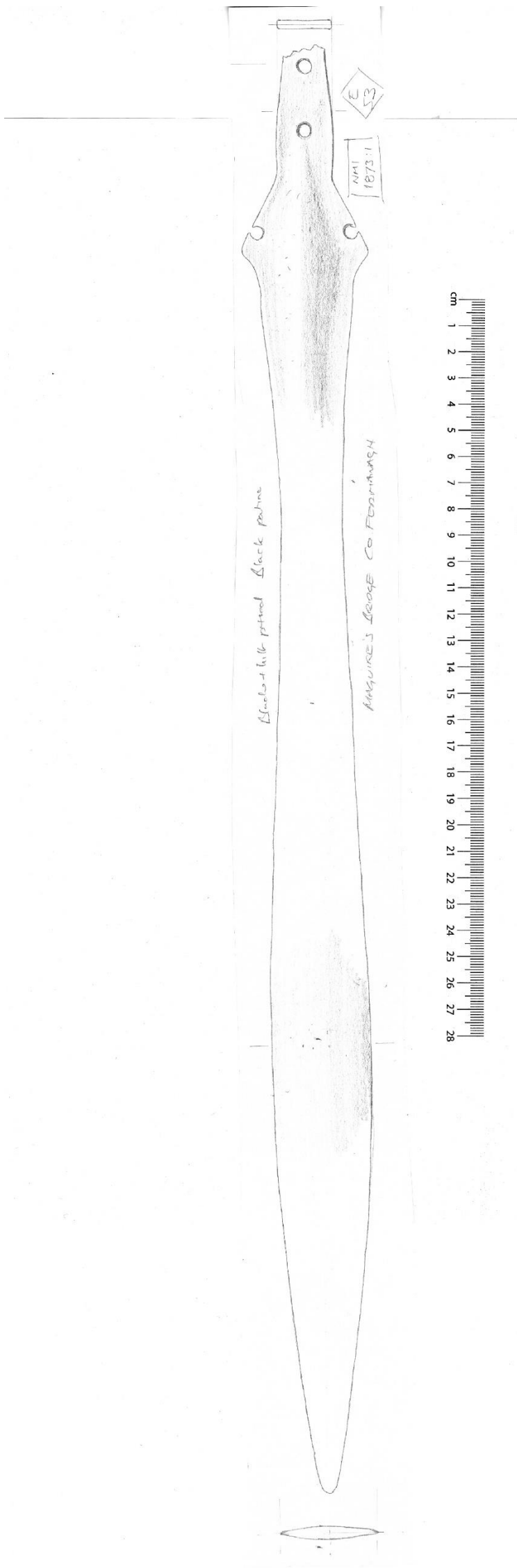


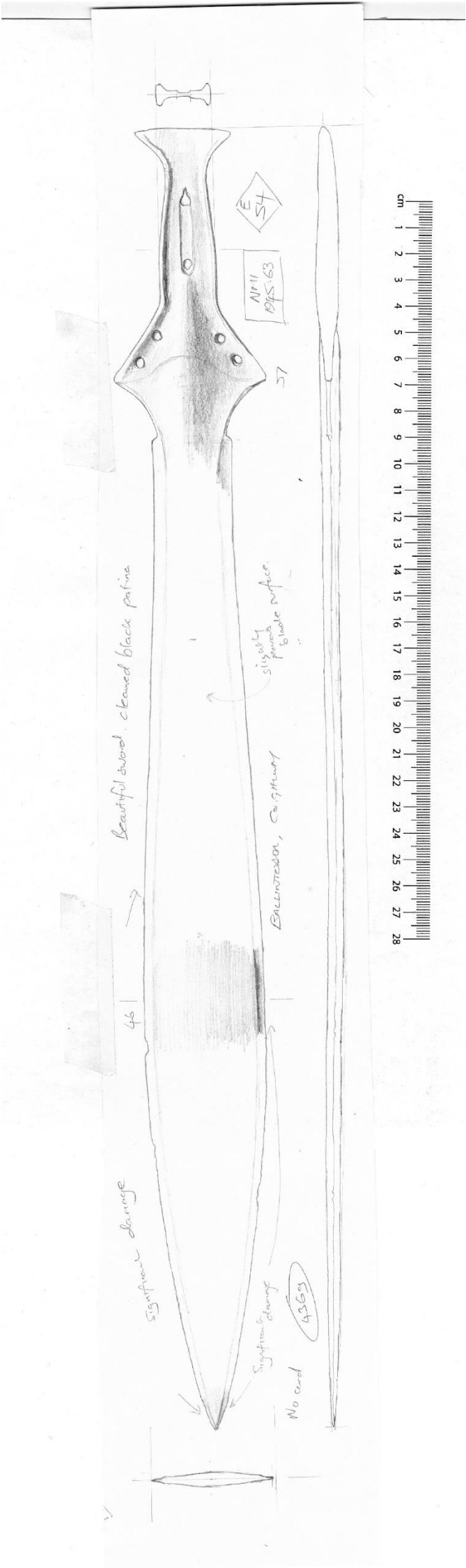


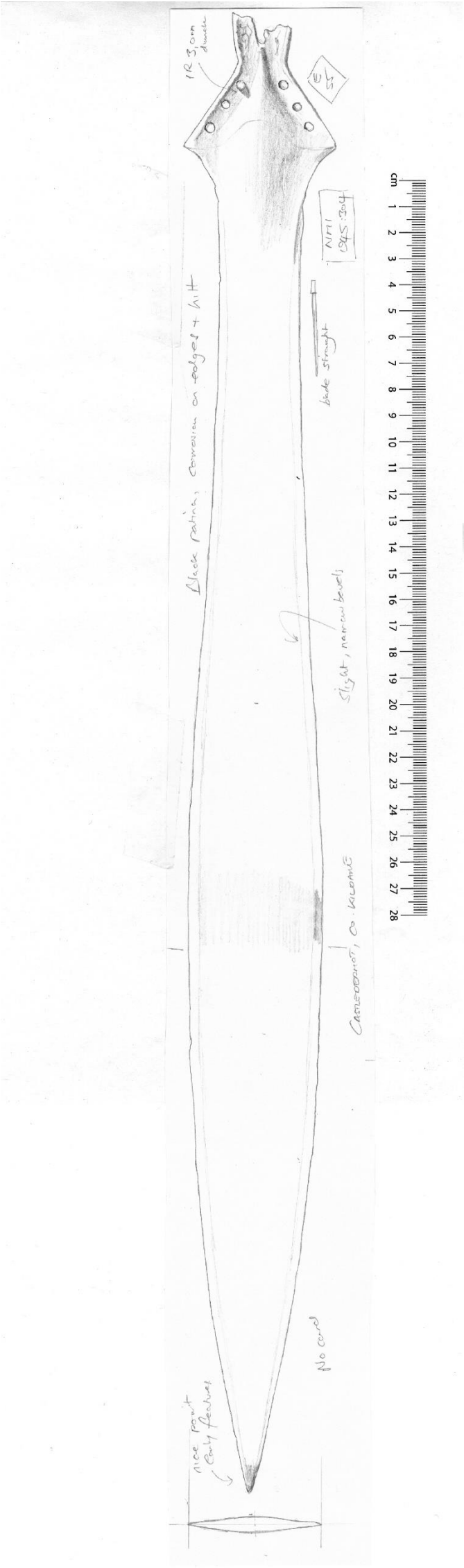


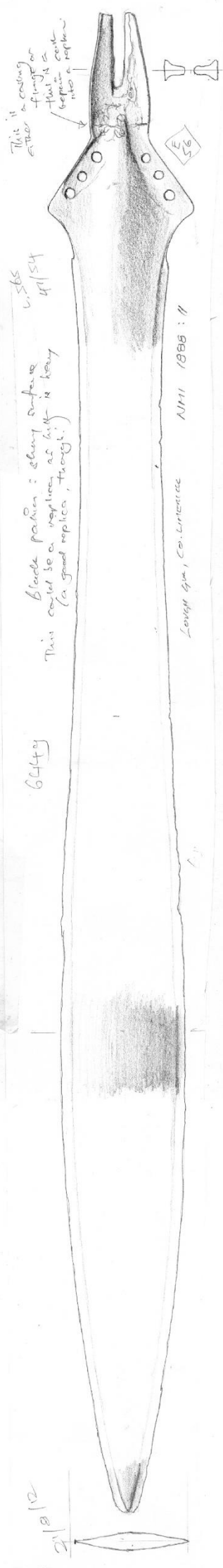


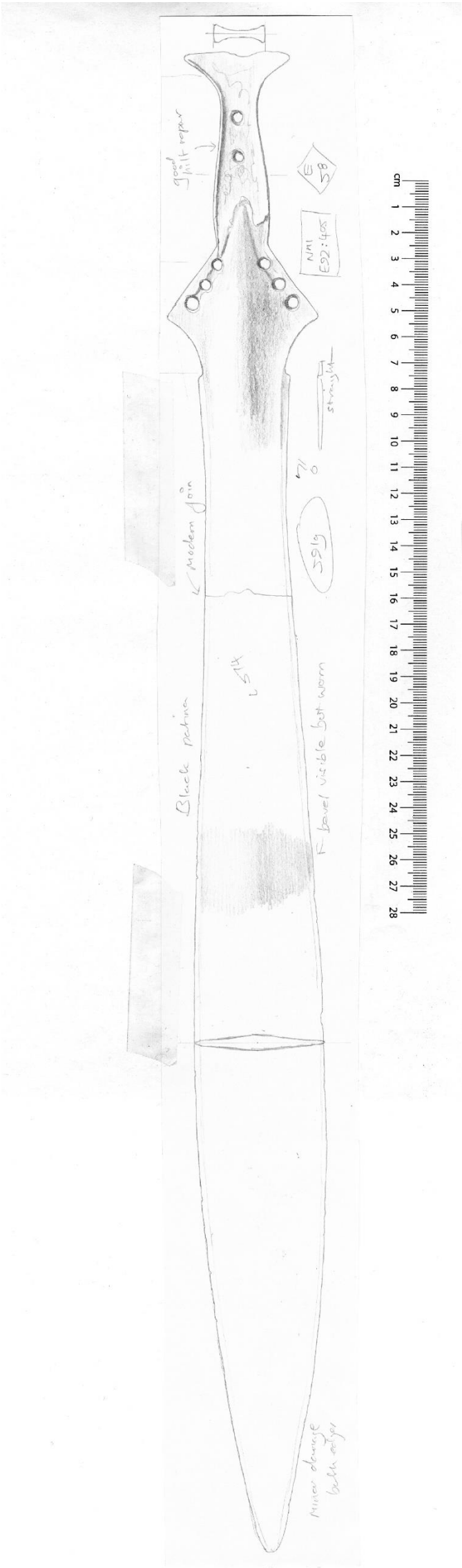


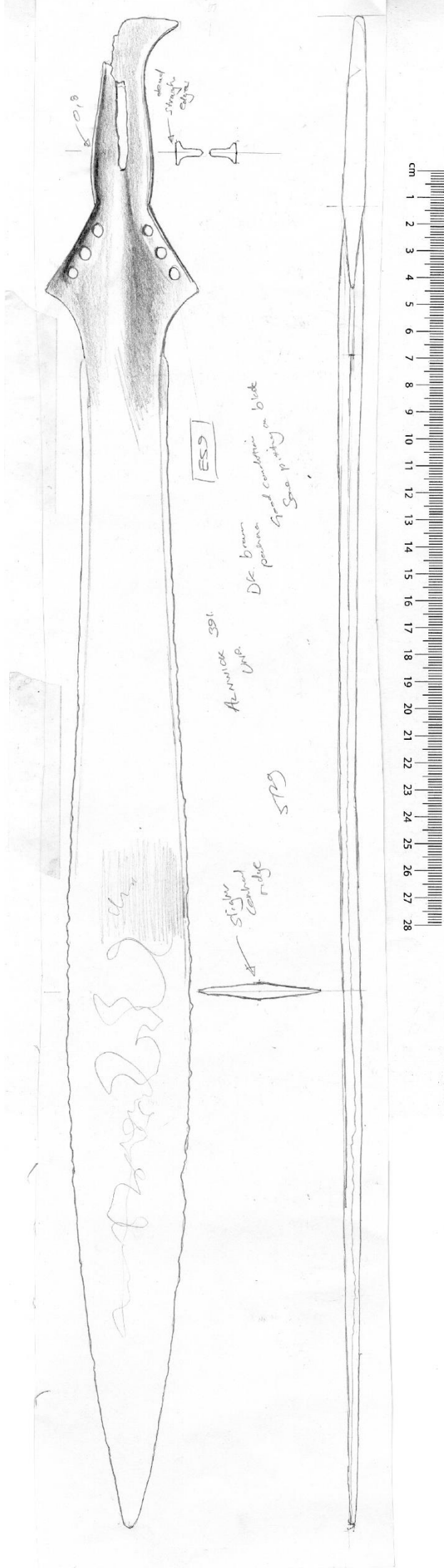


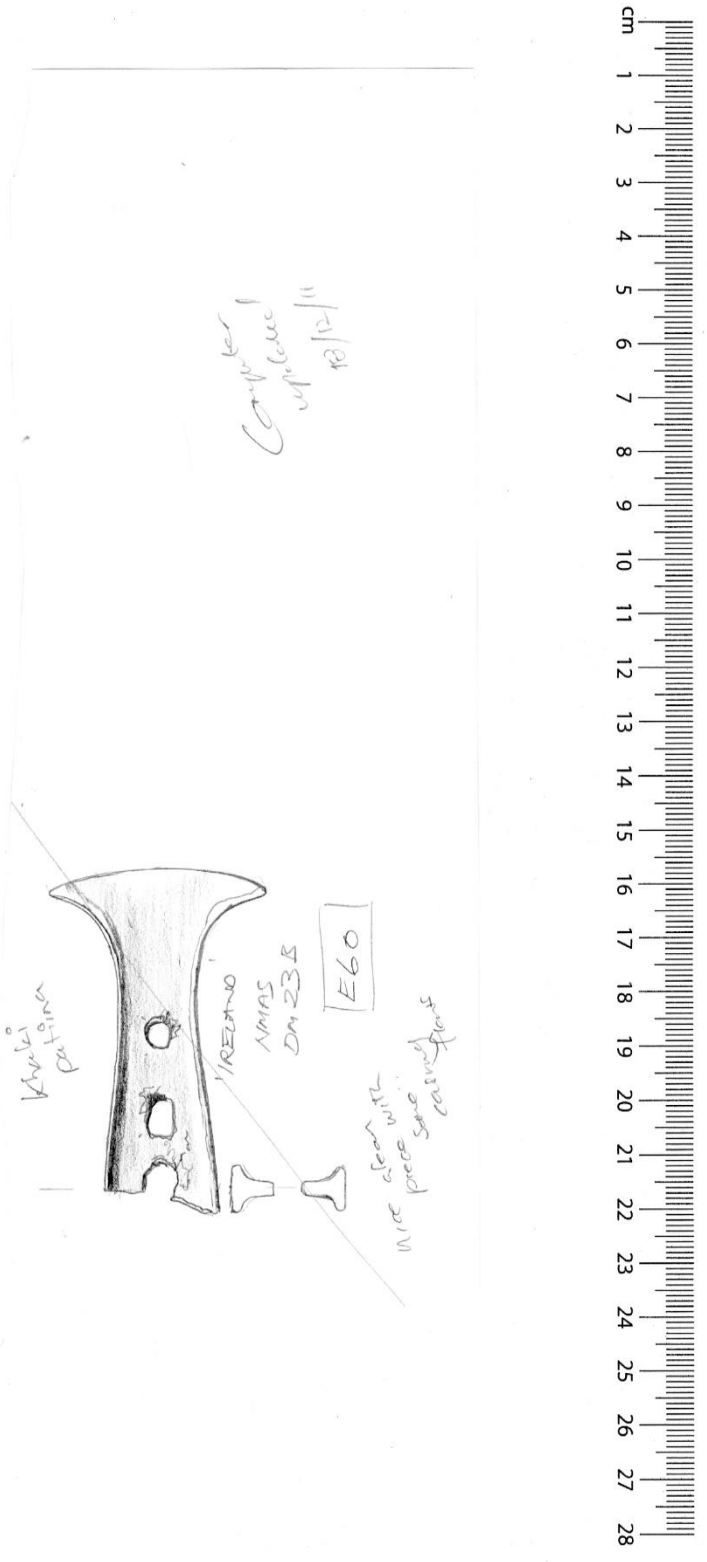




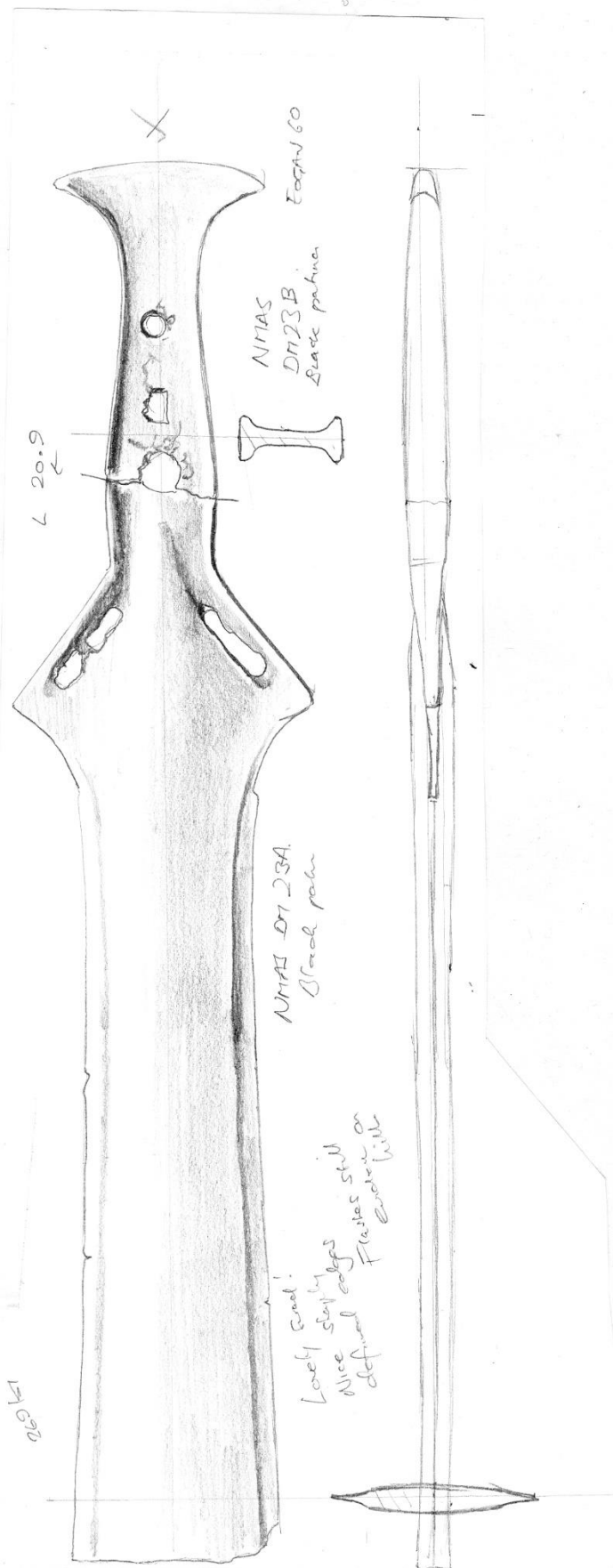




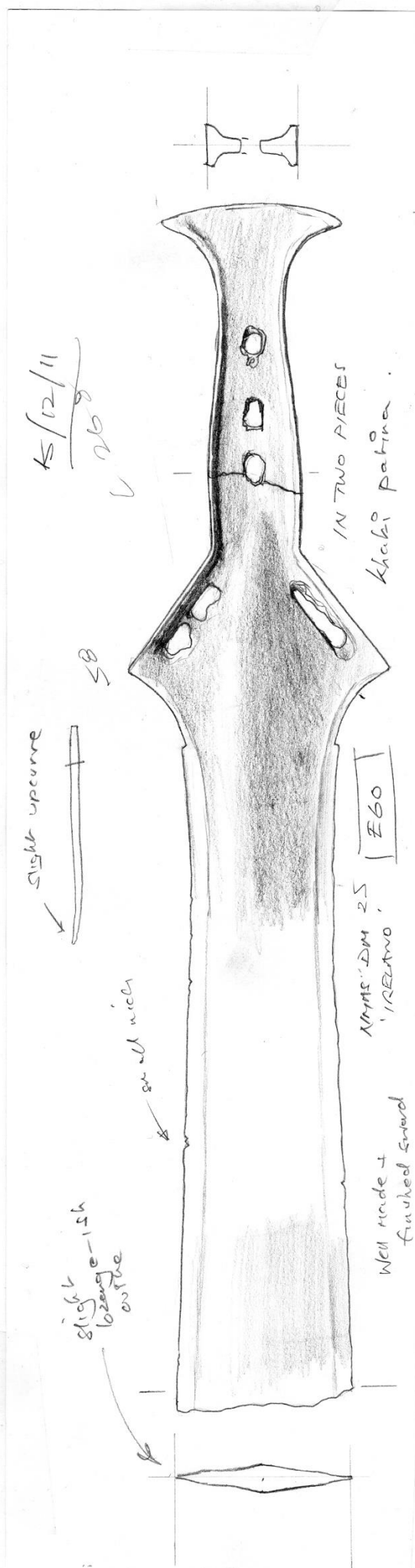


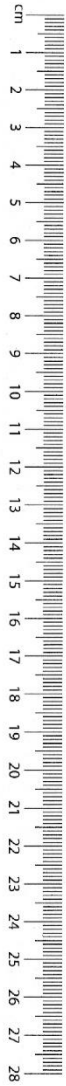
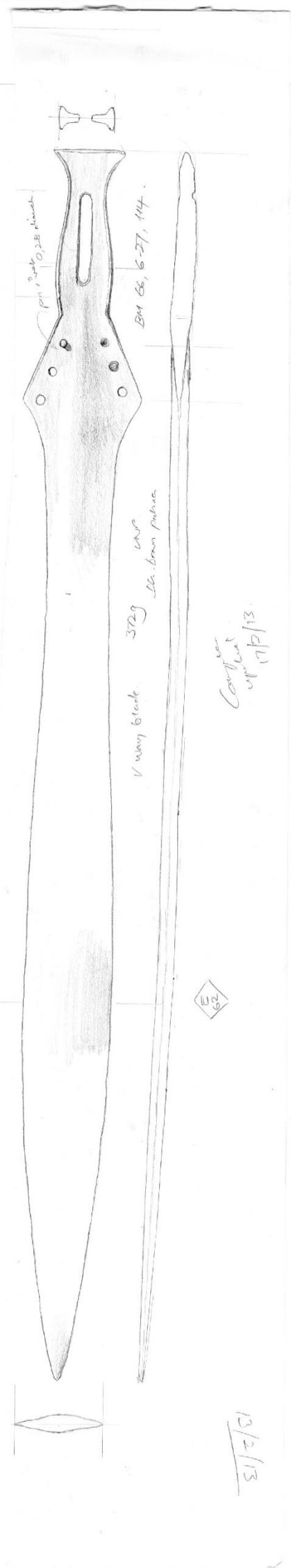


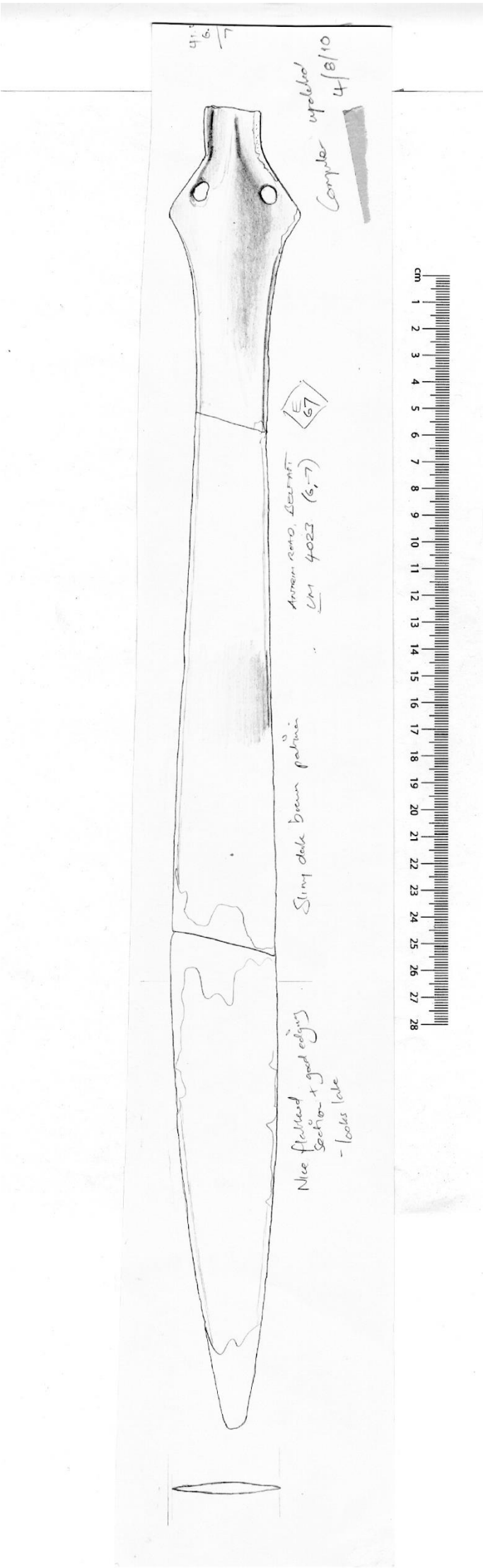
60 (2)

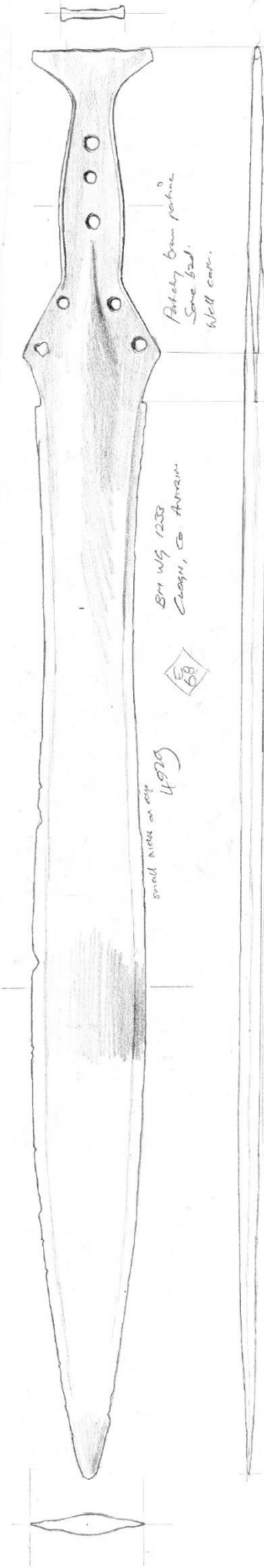


60 (3)









Patchy brown patina.
Some bad.
Well cut.

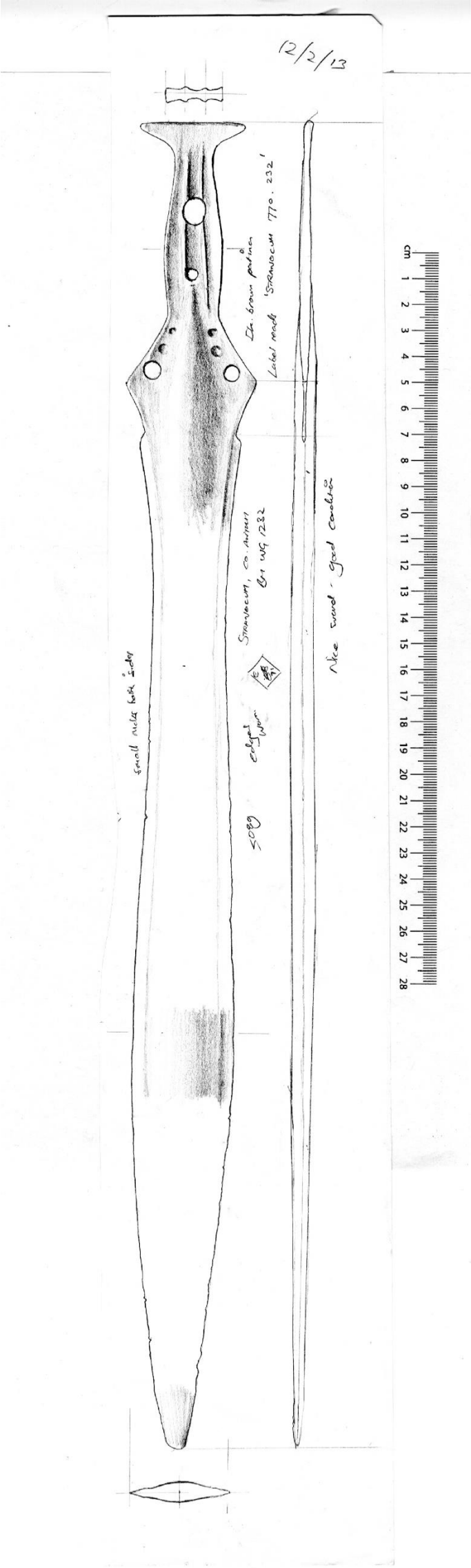
BM W9 1237
Crown, Co. Antrim

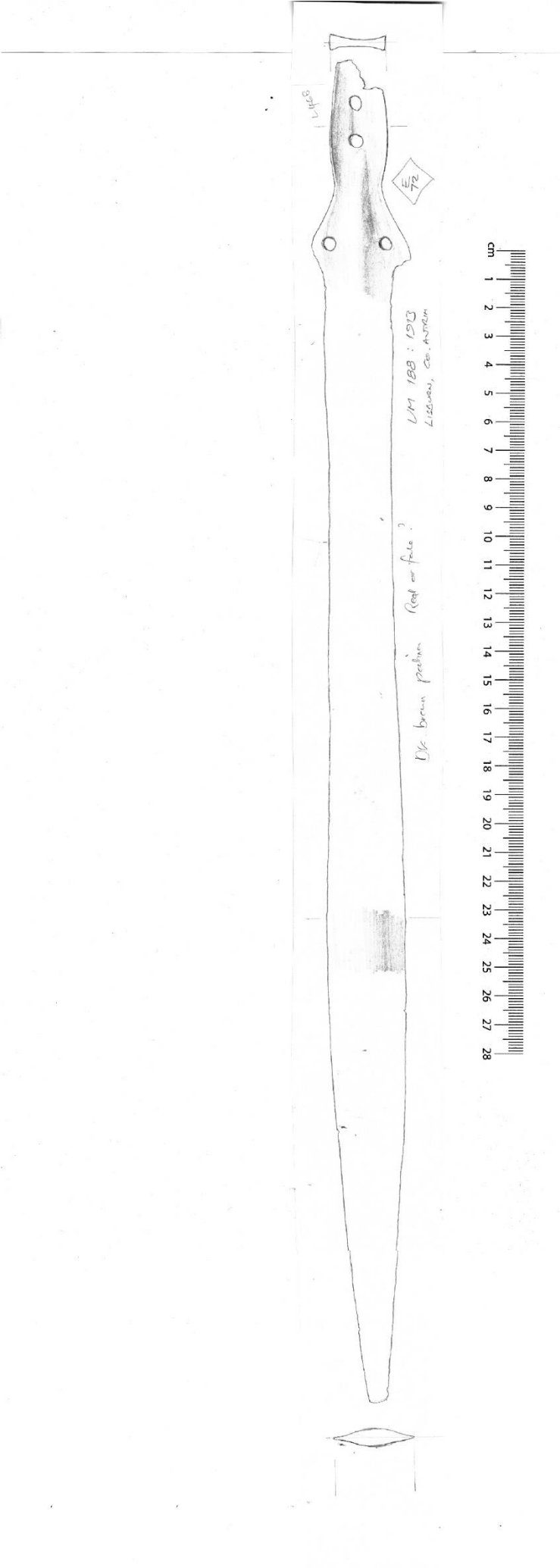
58

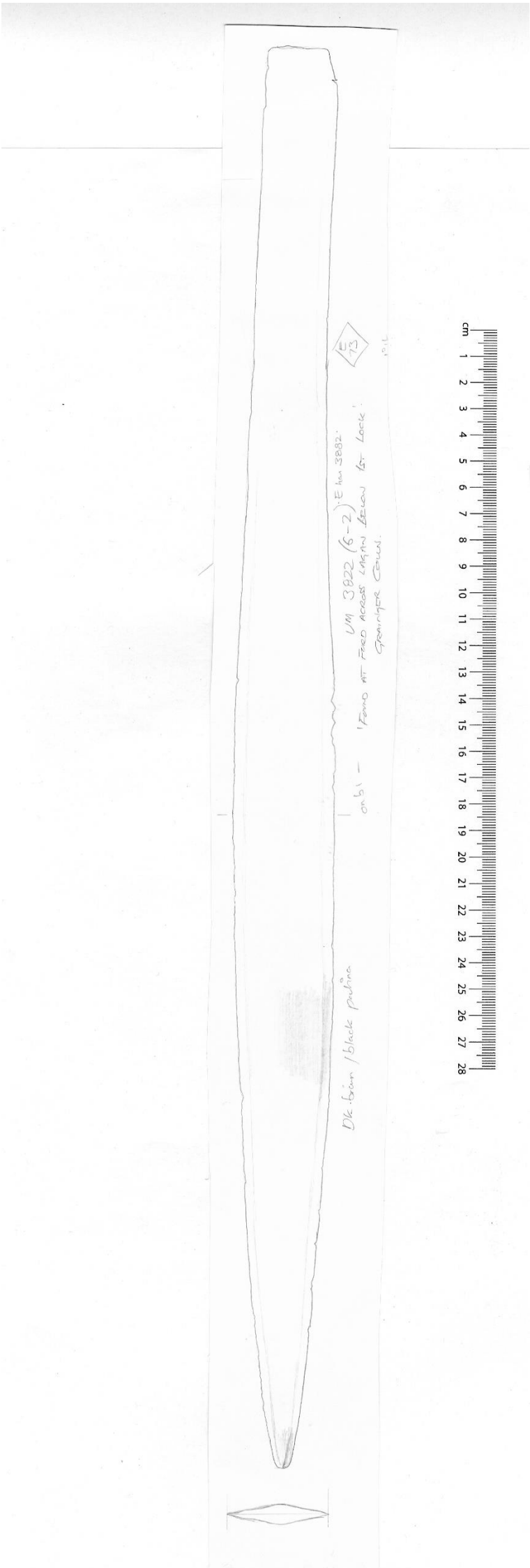
Small piece on edge
4.92g

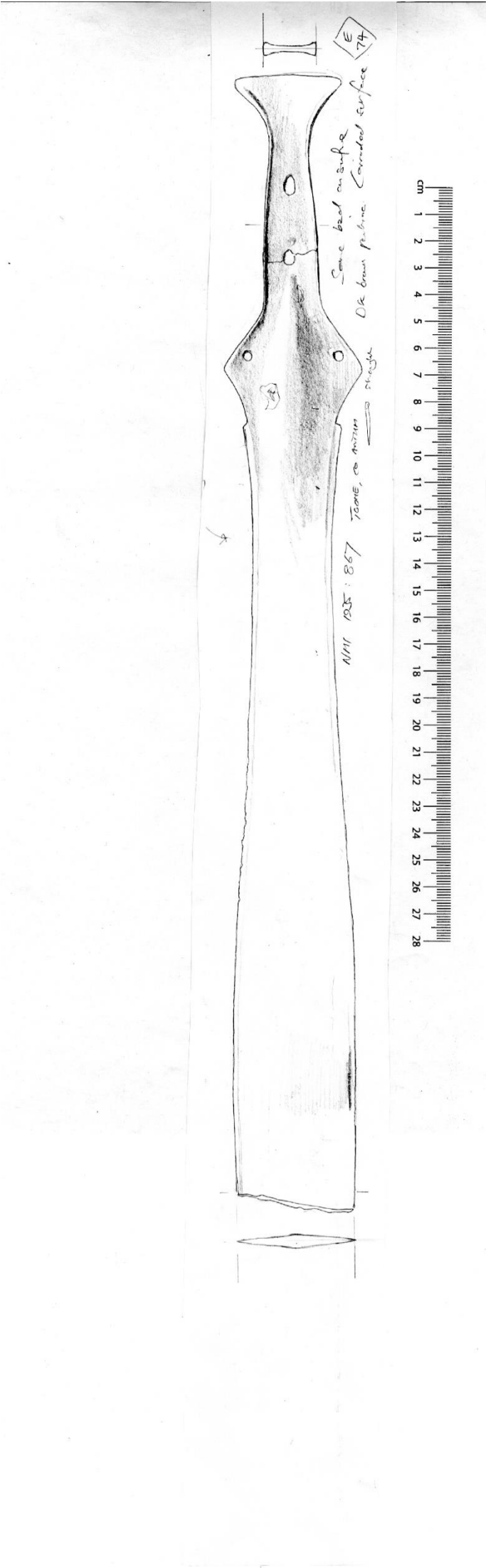
Copy
W9 1237

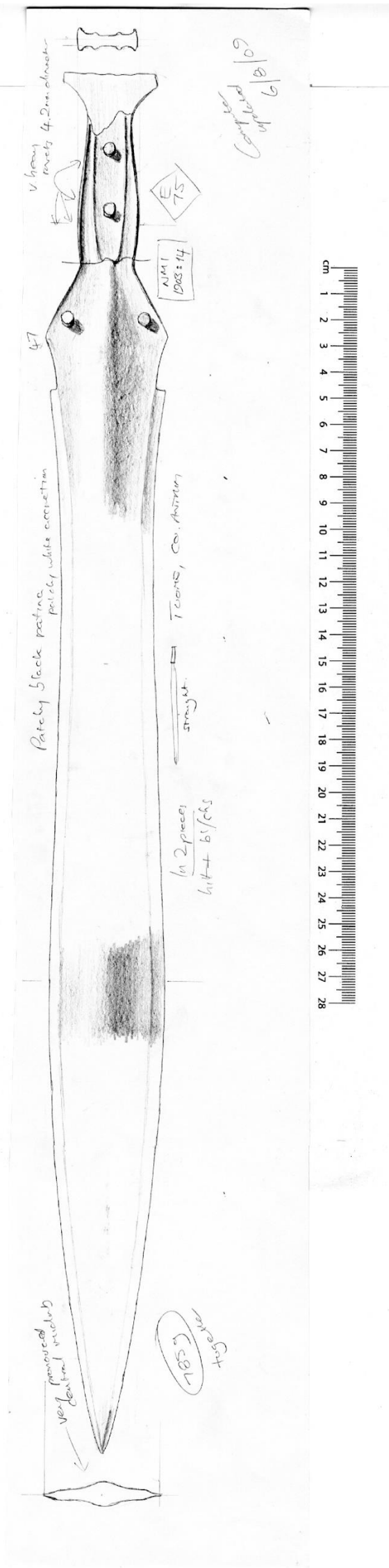


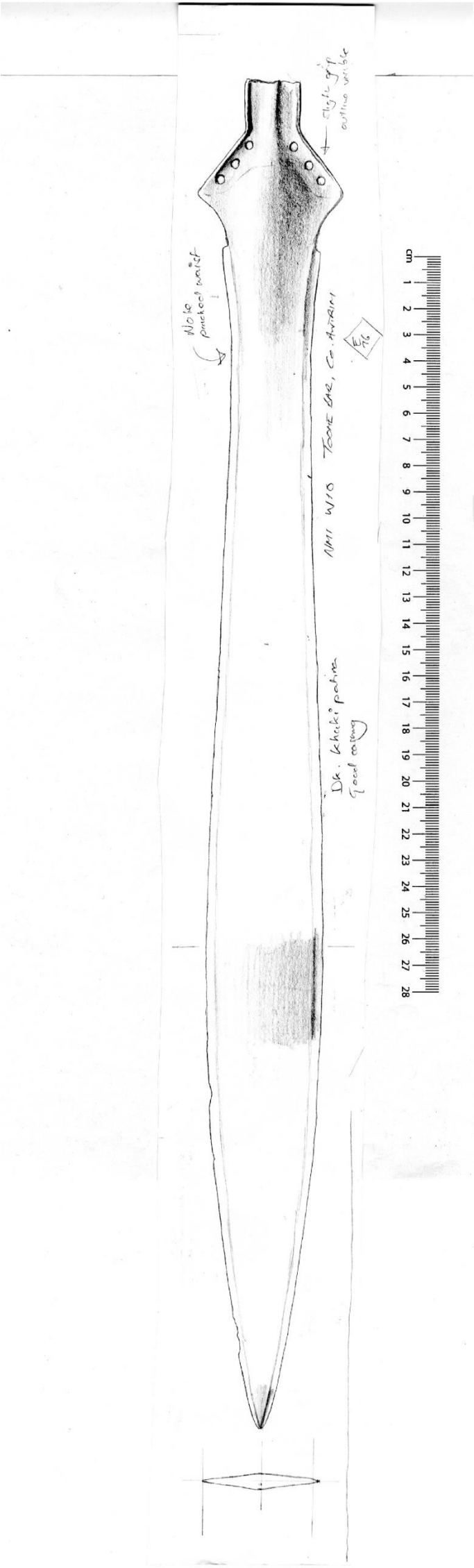


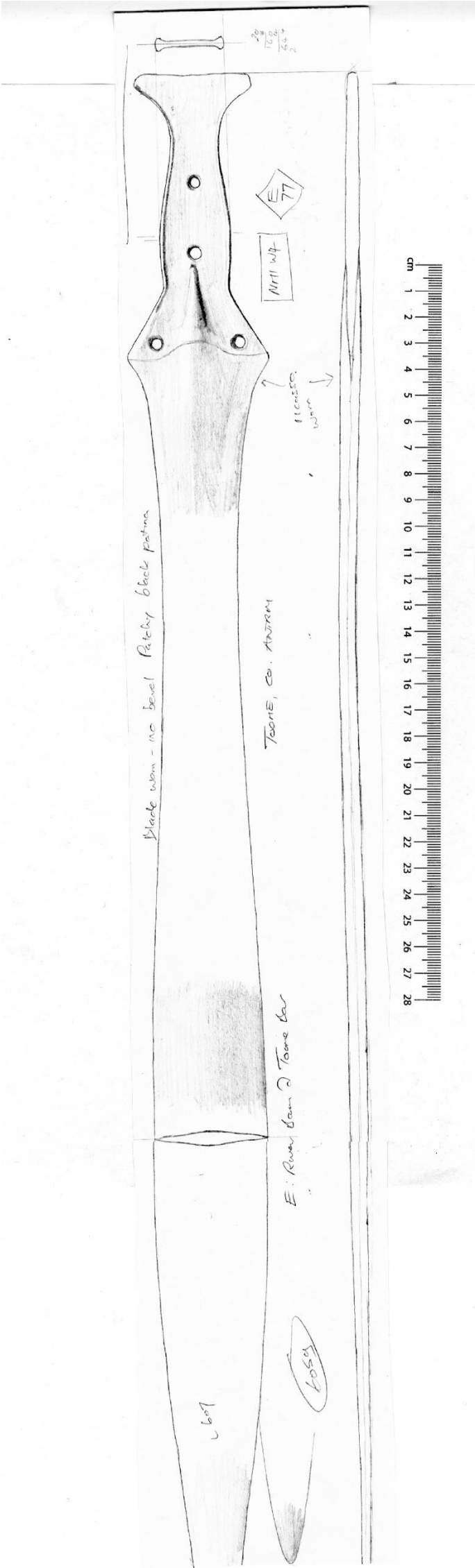


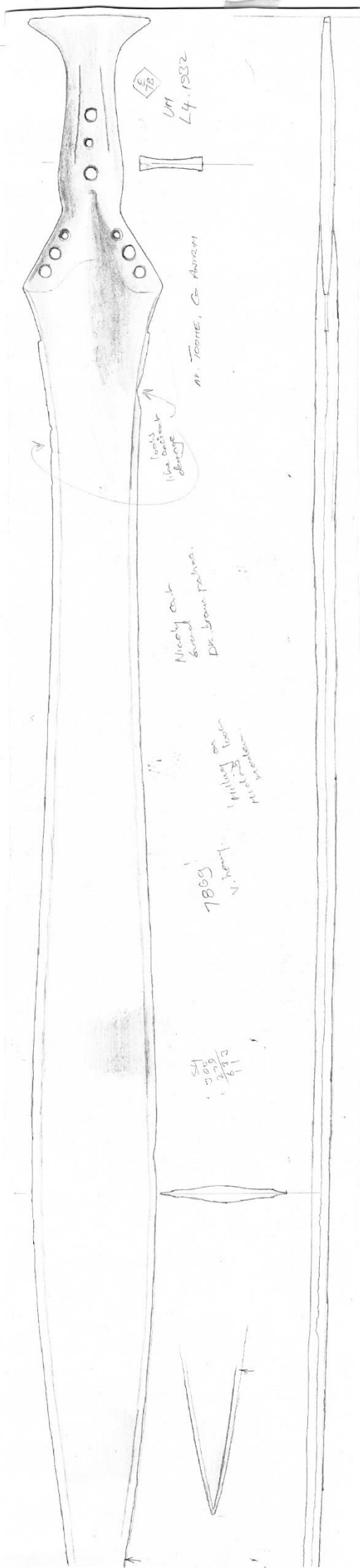












4/8/10

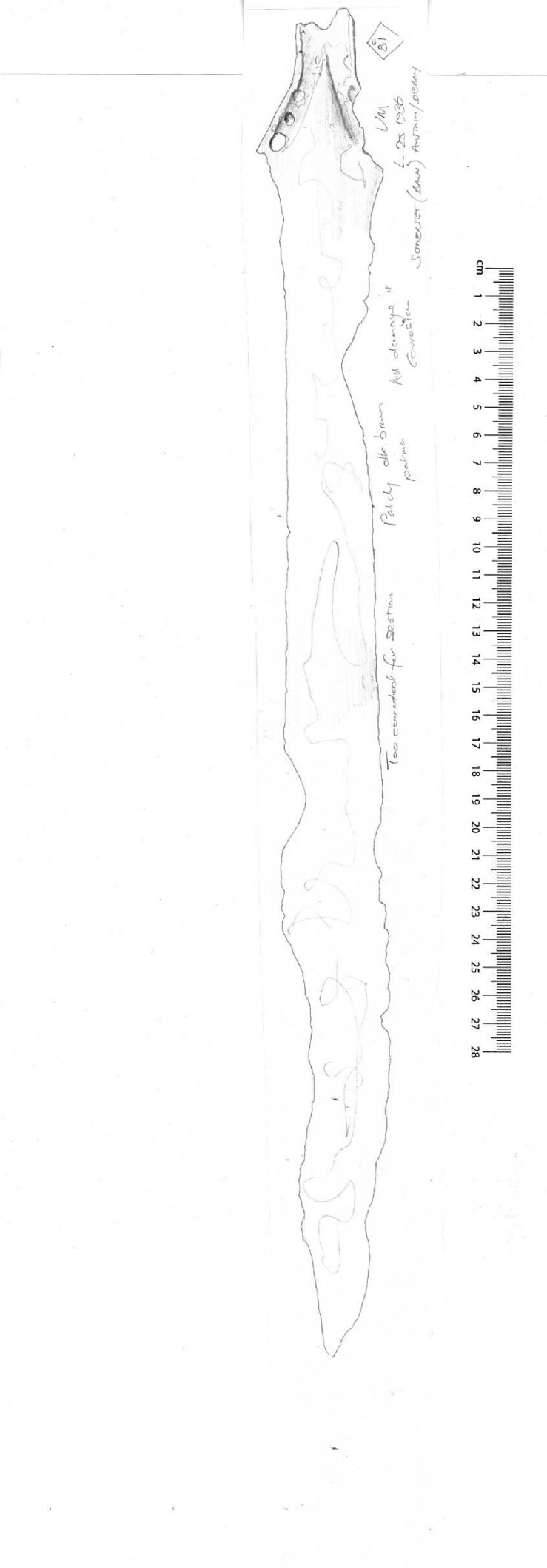


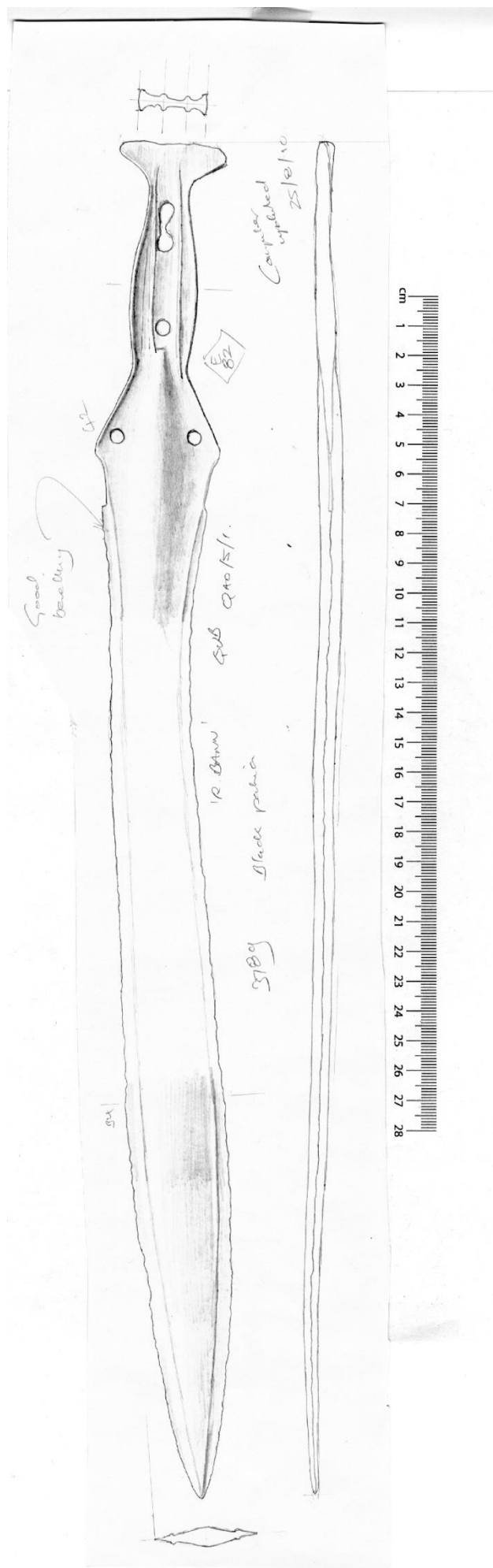
UM 212-1555

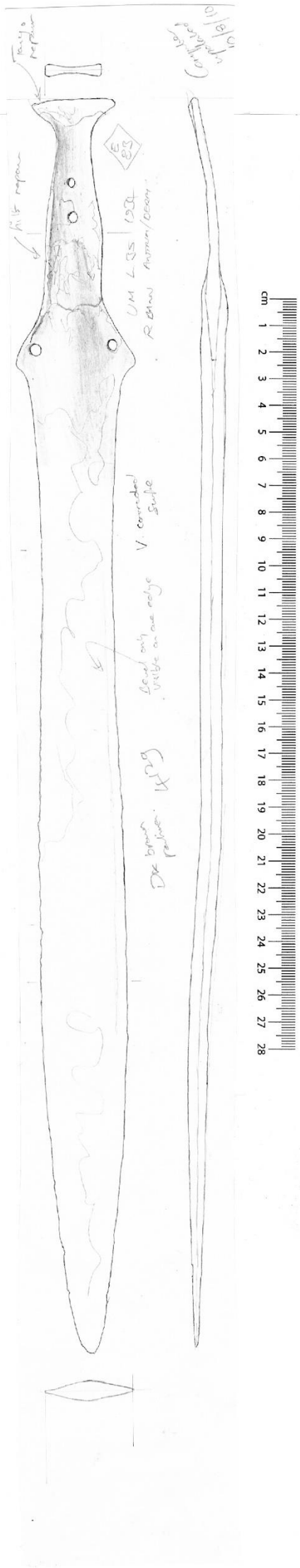
Dk. brown paper
Candee

Label reads - 'Brought up during dredging ... between Tere Whin and
Railway Bridge 1846' (middle section uninterpretable).

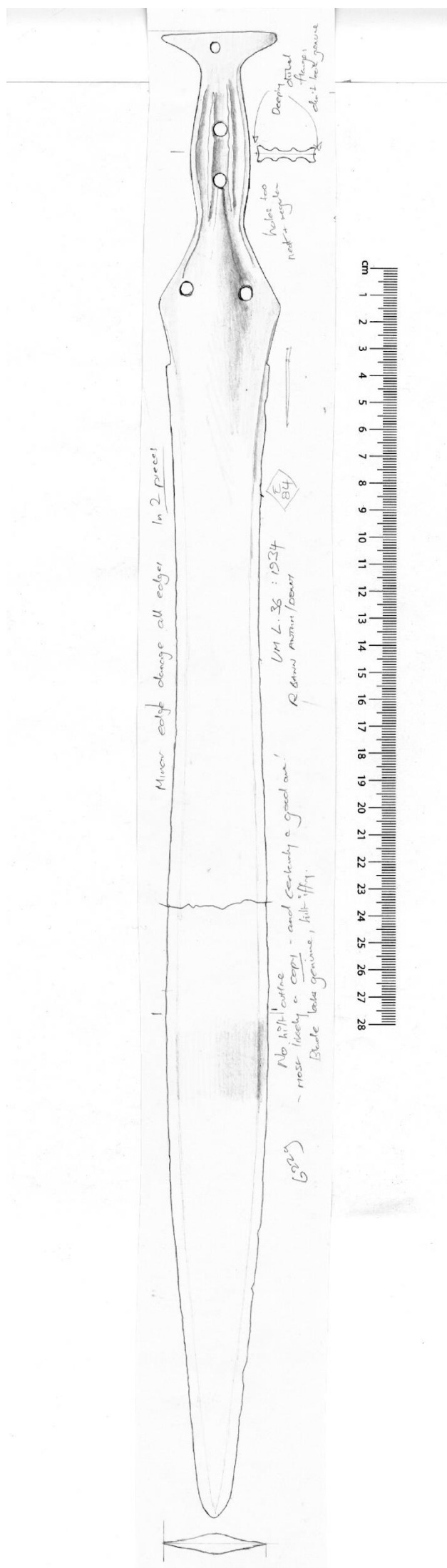


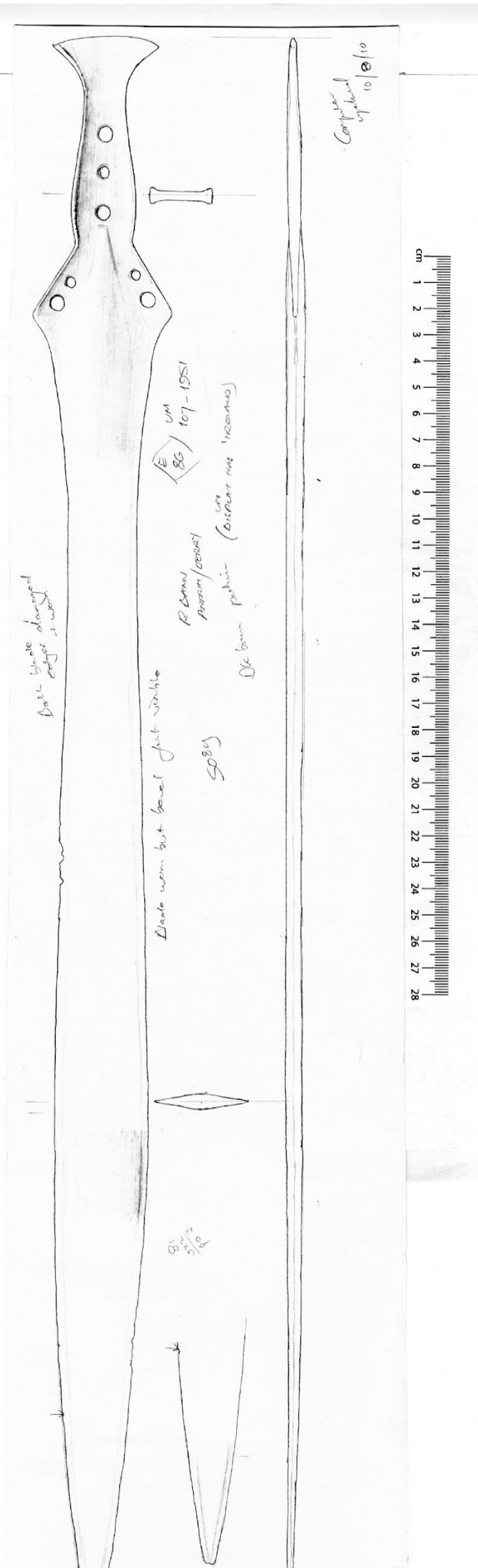


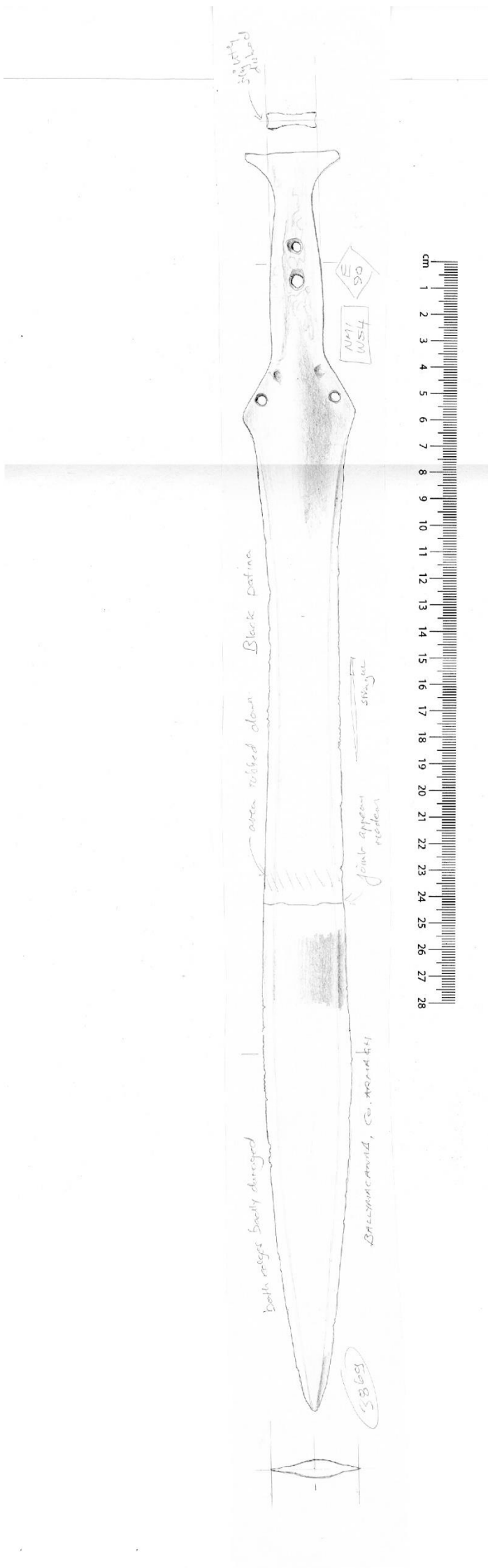


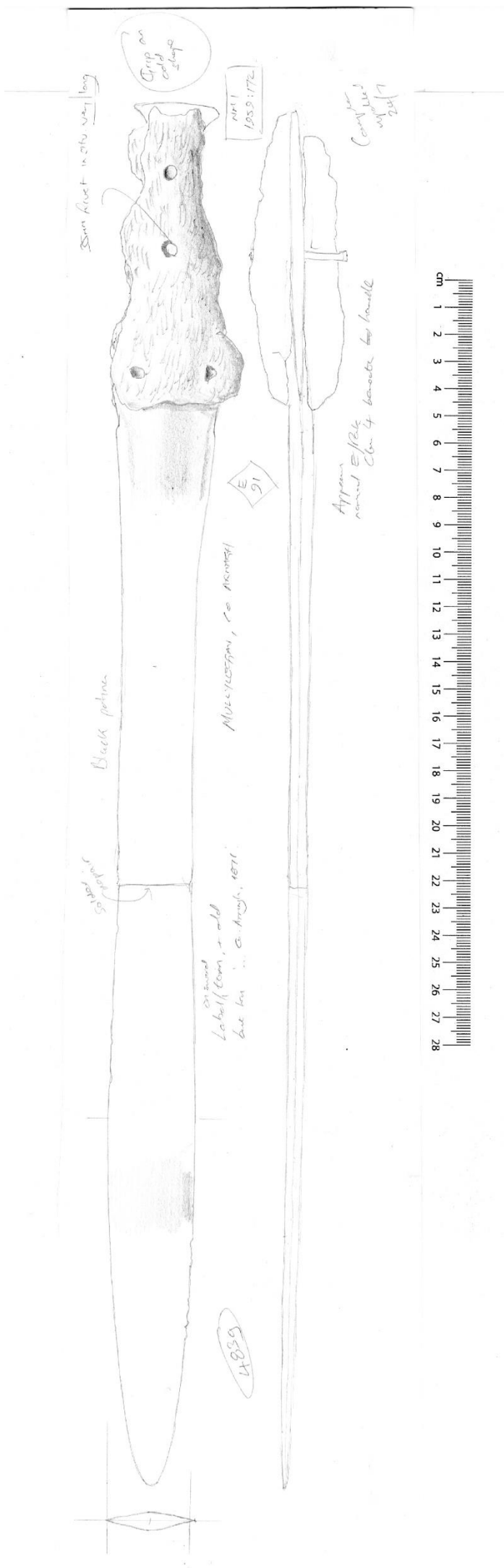


84

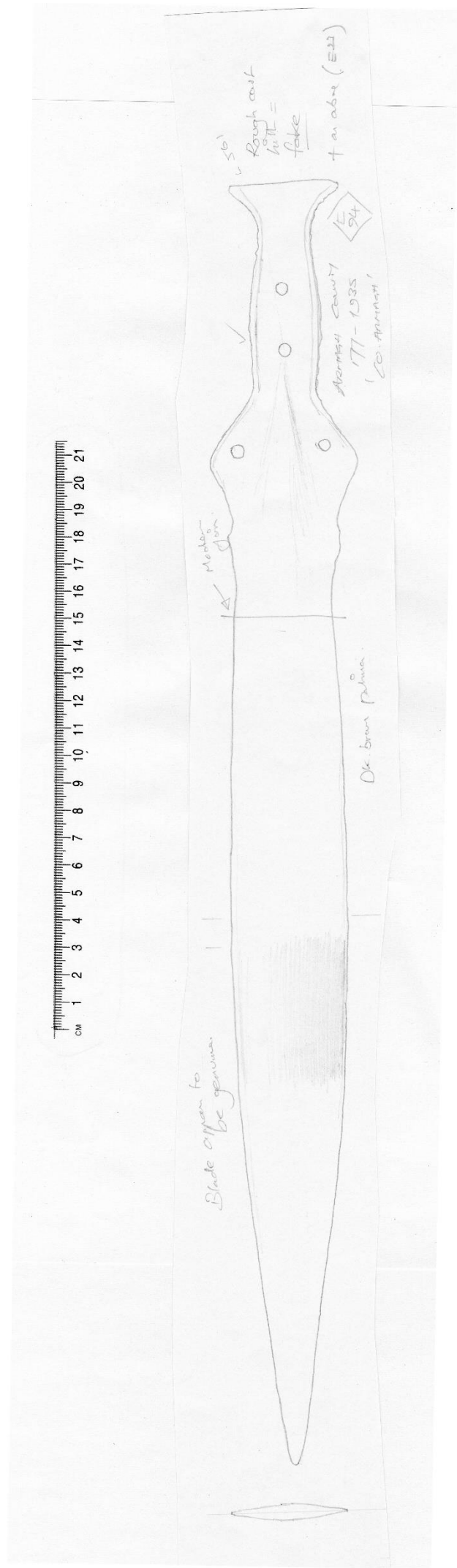




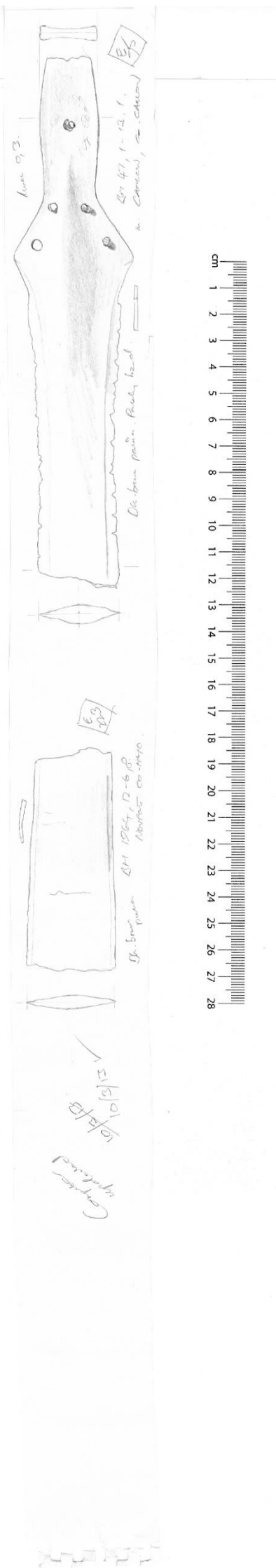


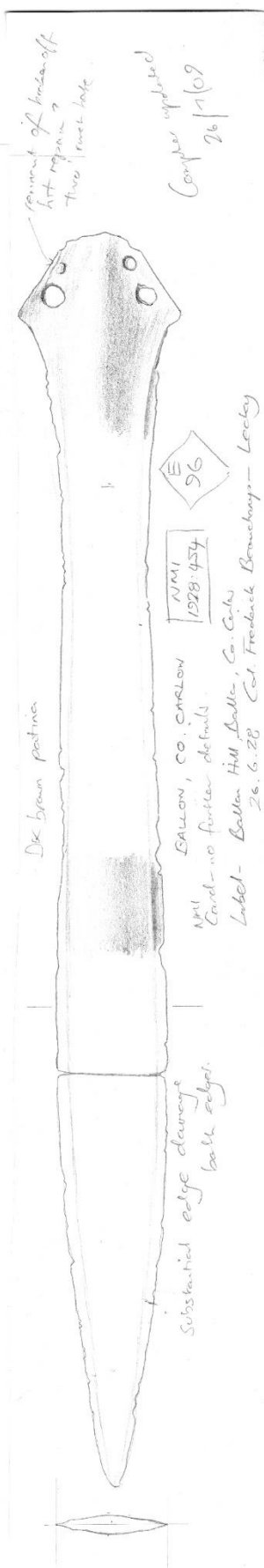


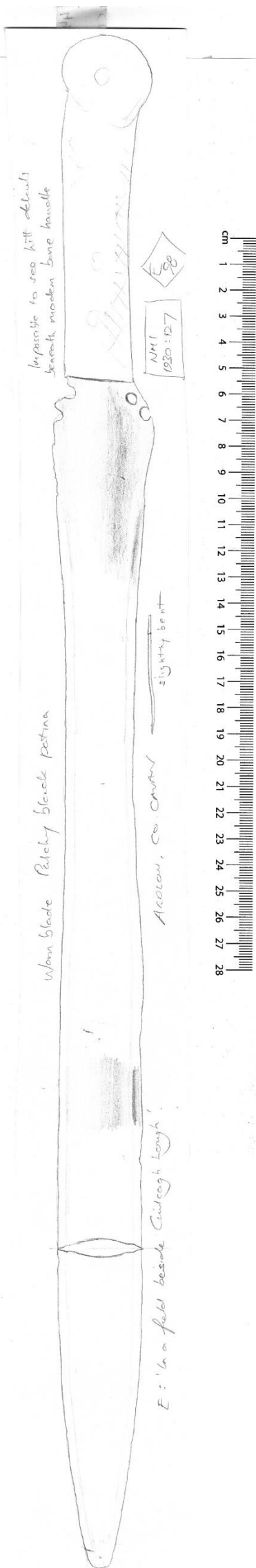


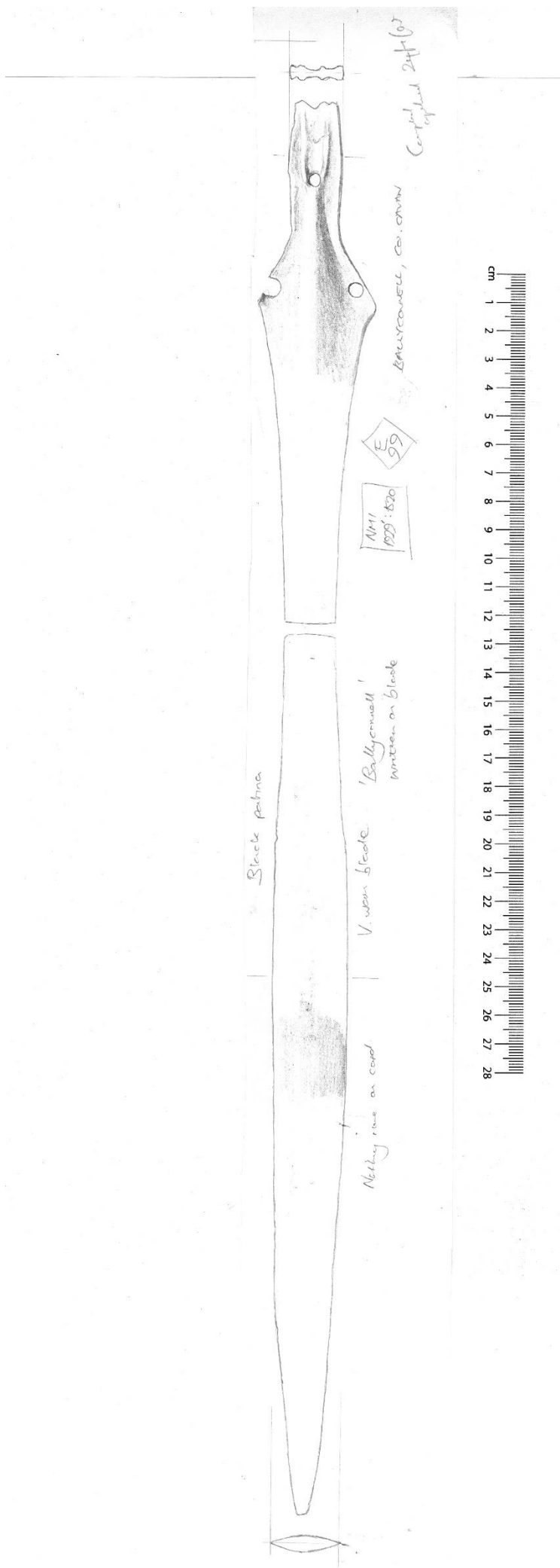


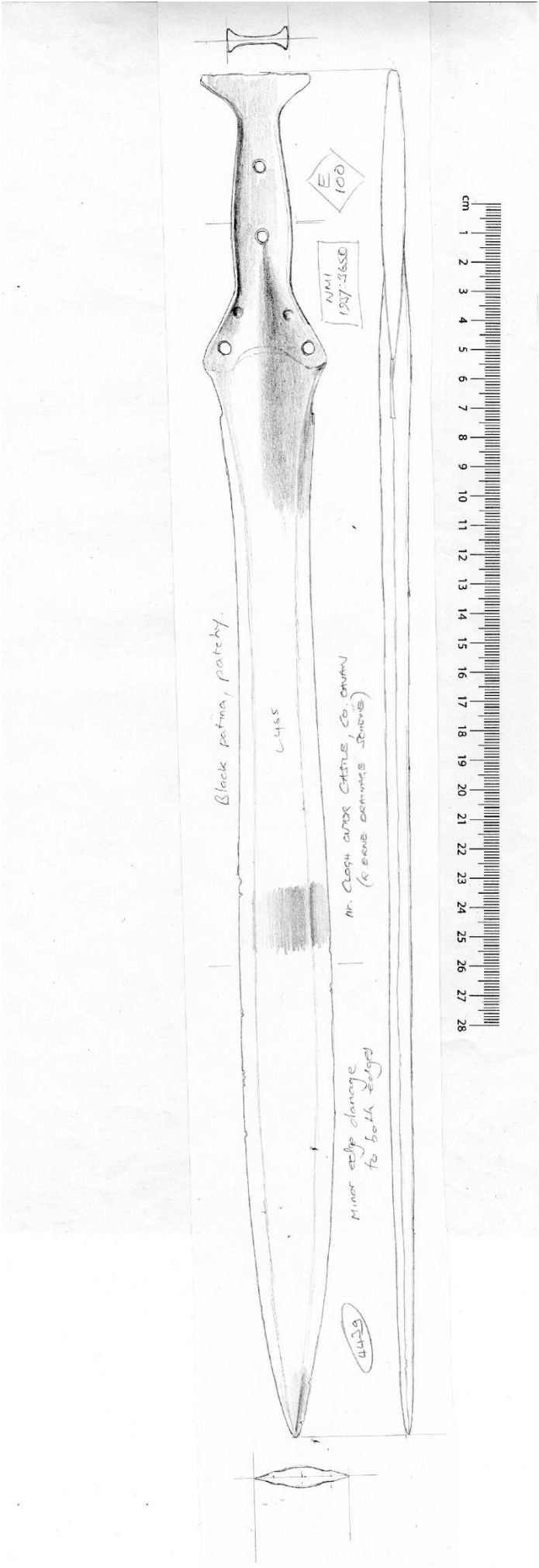
95
223



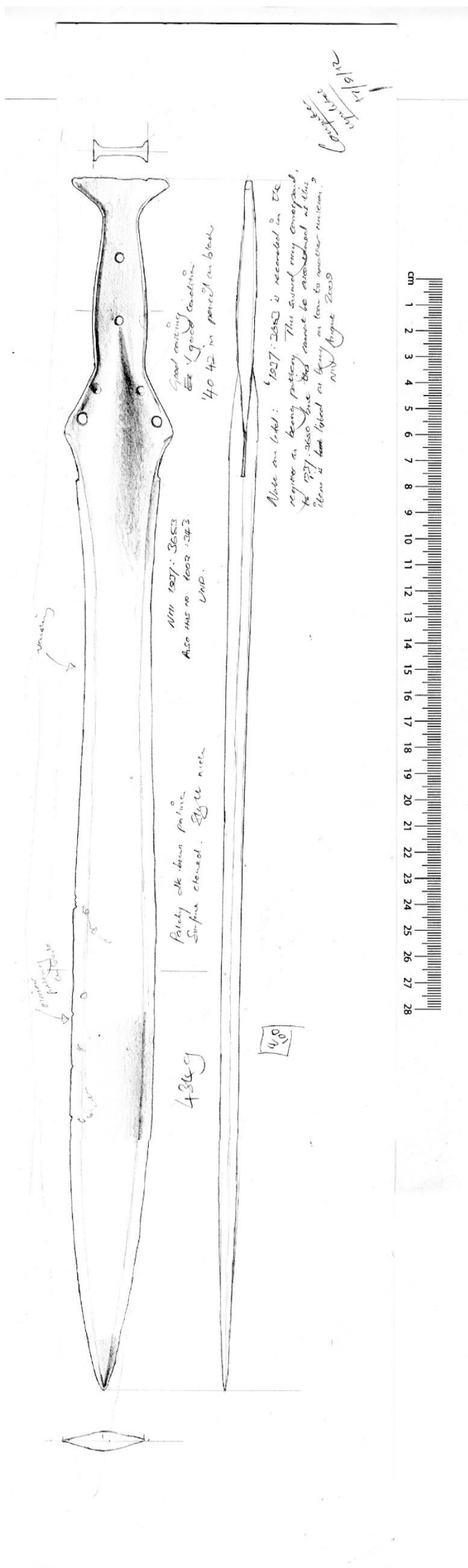


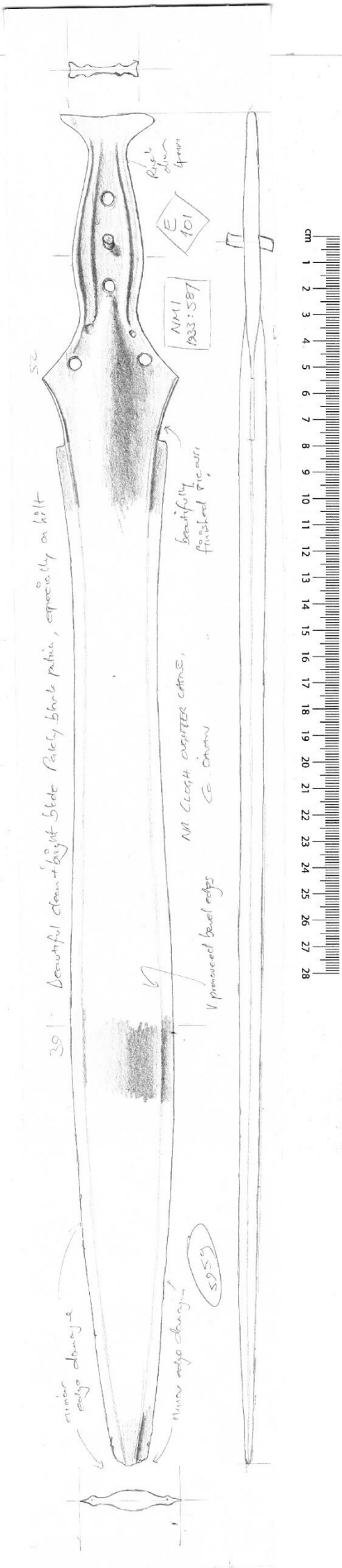


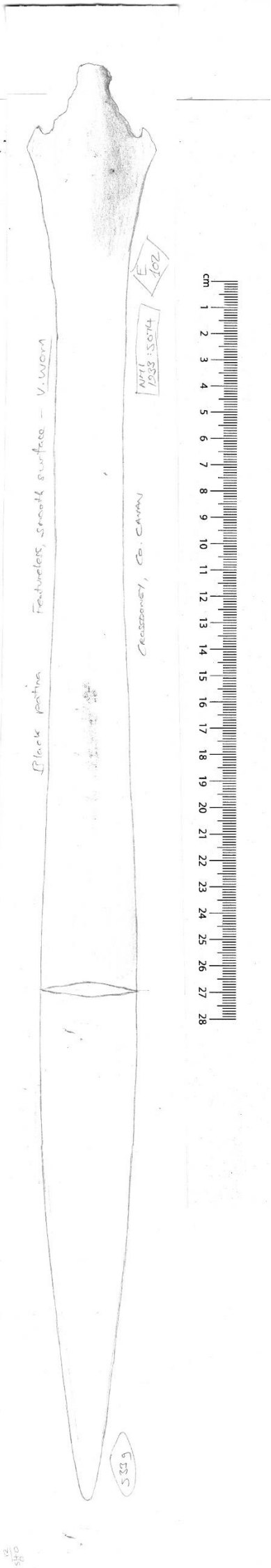


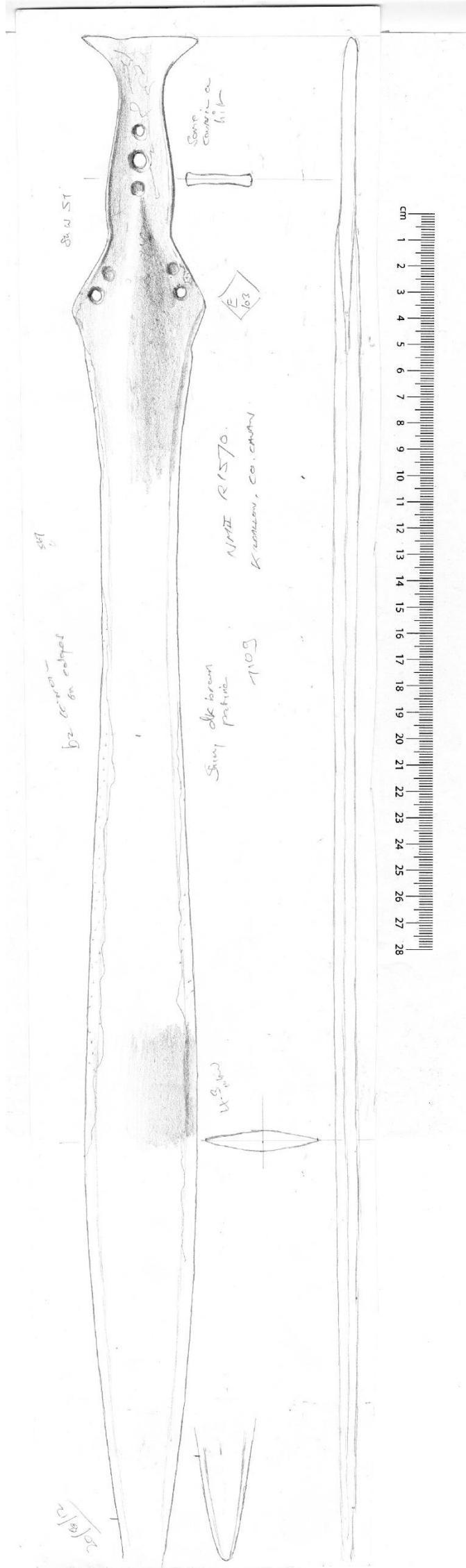


100 (2)

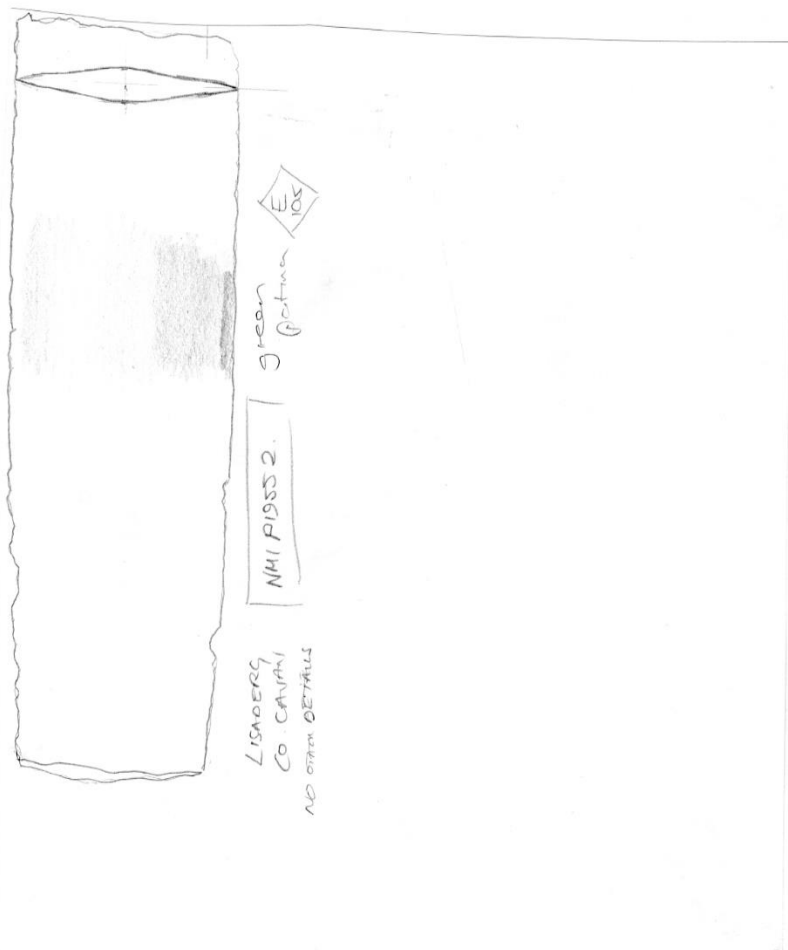


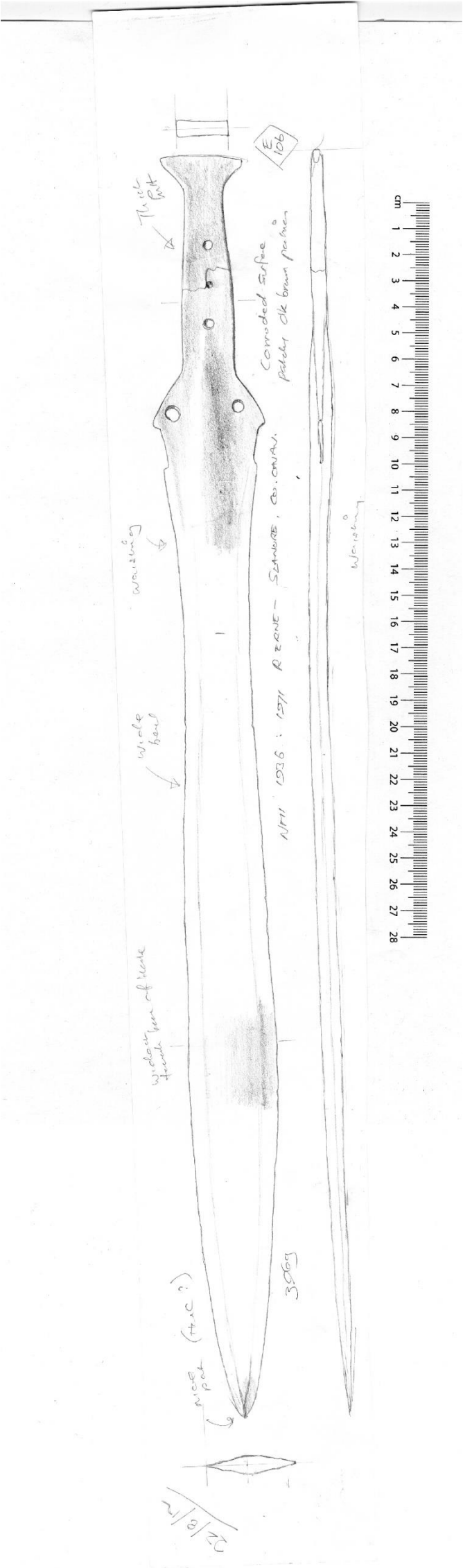












Green Patina. Dk brown patches.

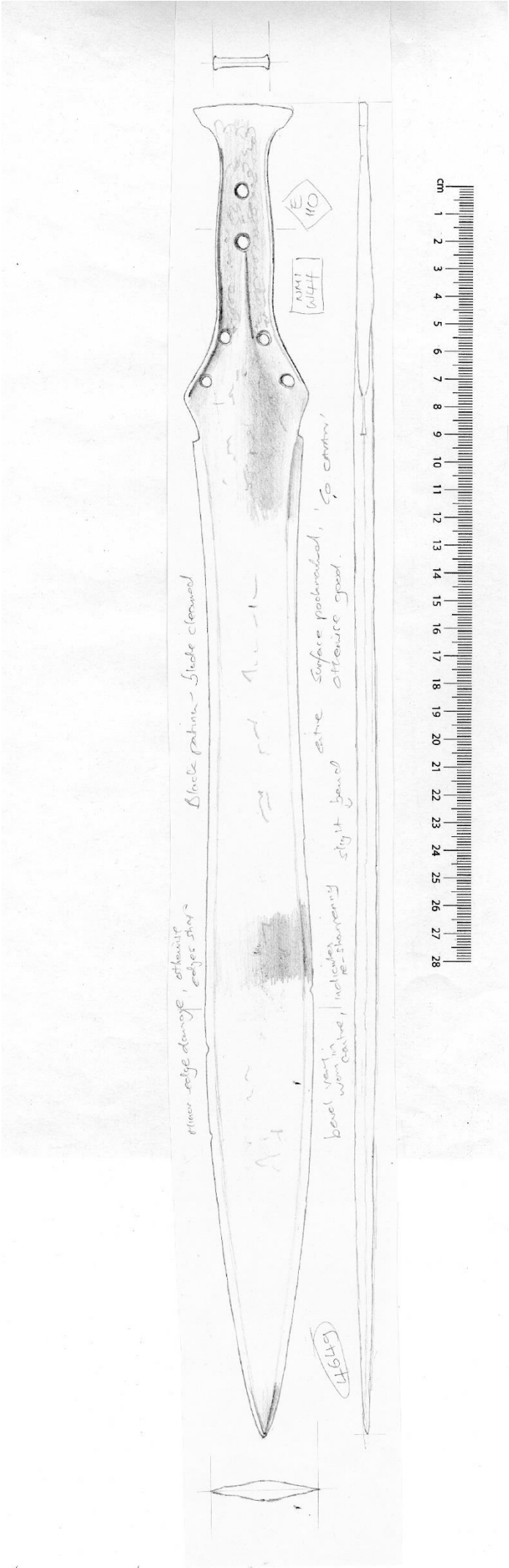
Label - ASSET, TRINITY IS. Co. CANV.

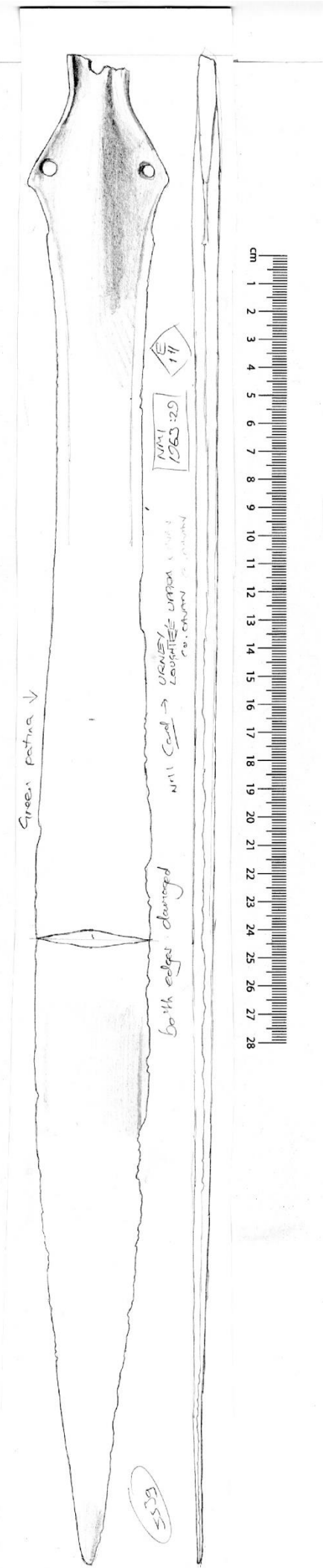
NMI 1937:2852

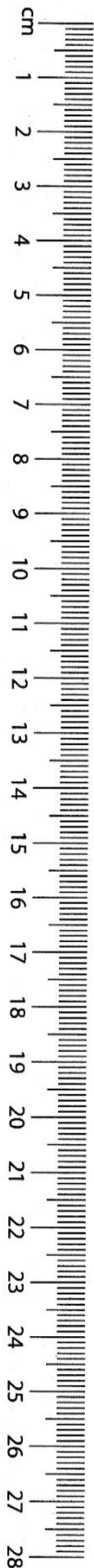
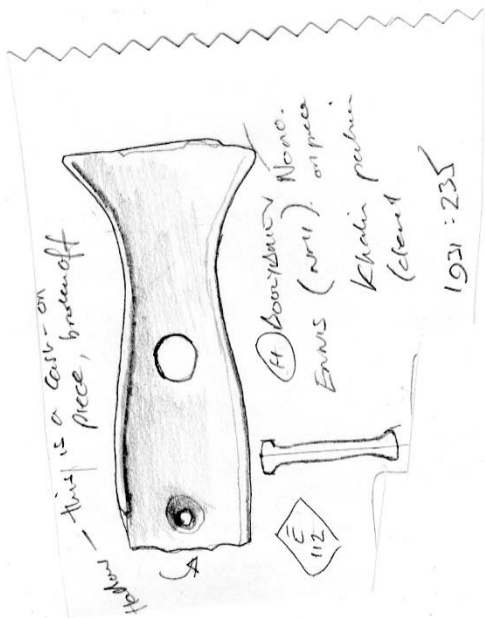
bent

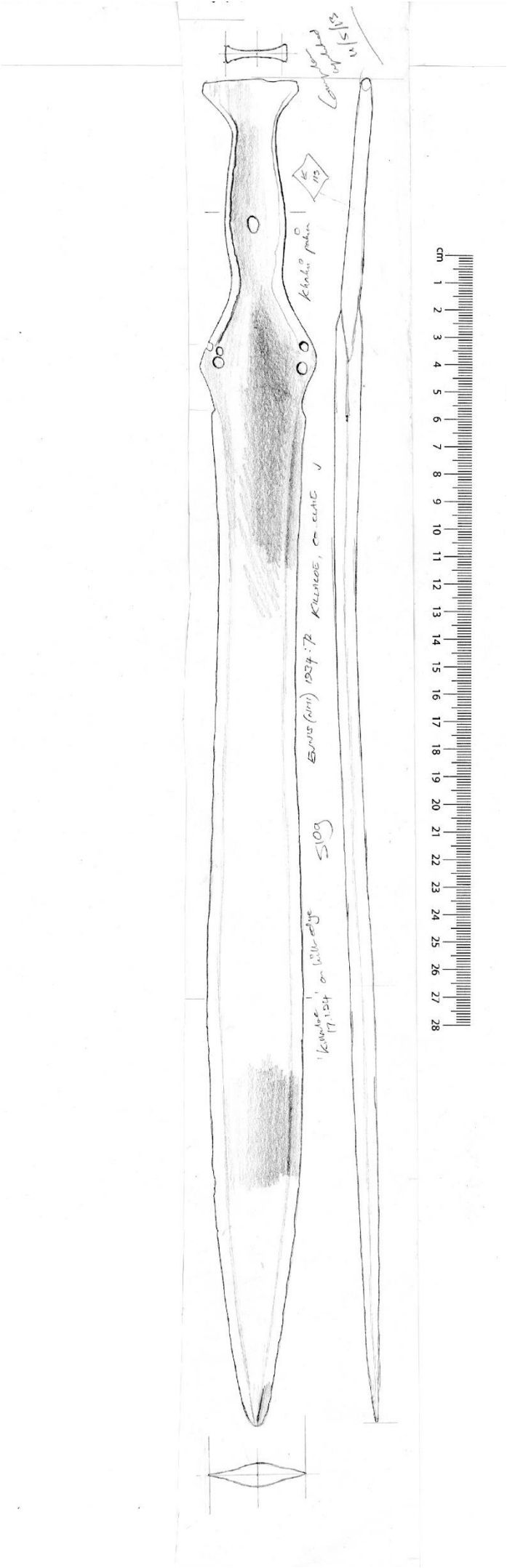
E 108

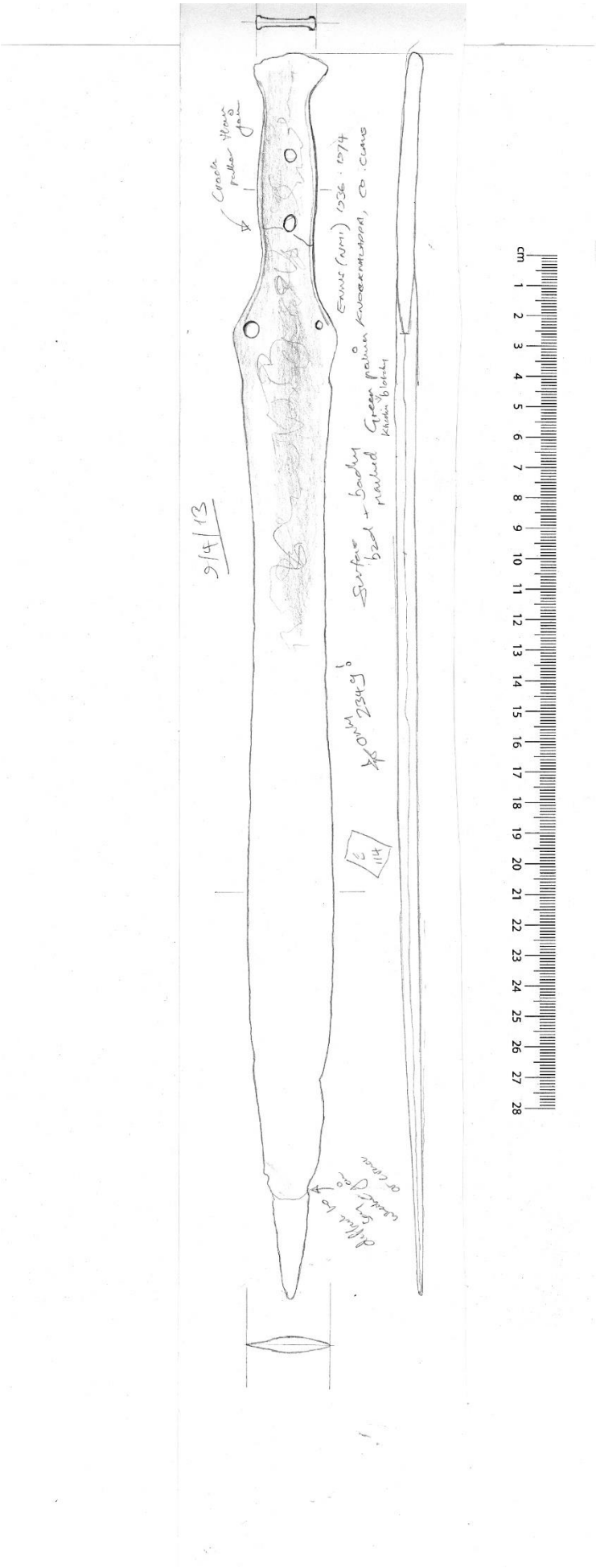


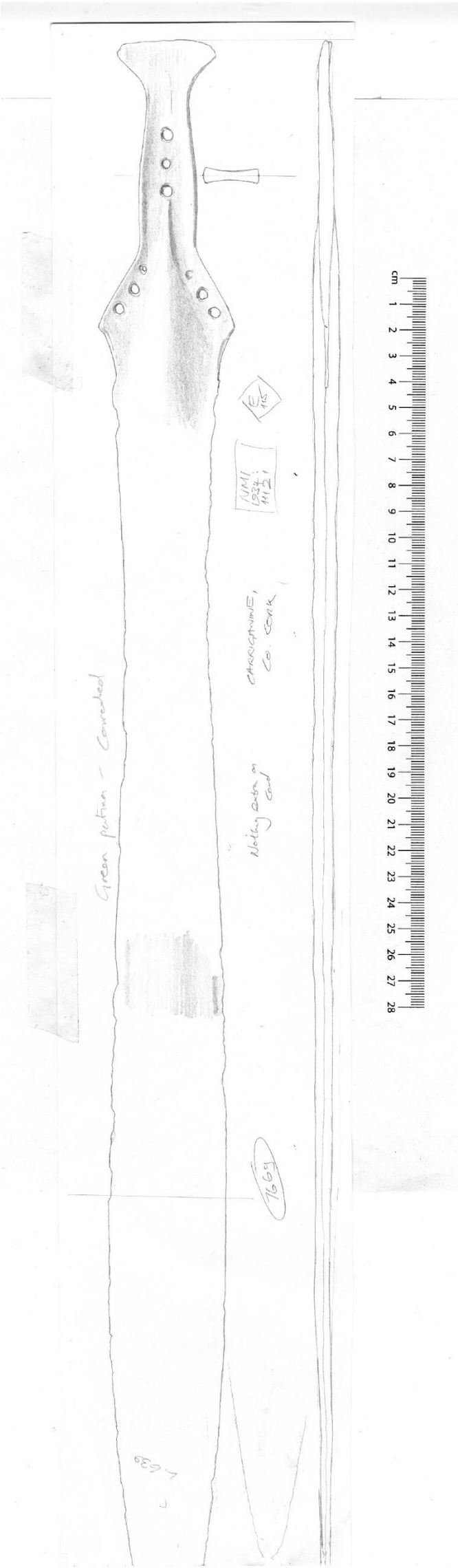


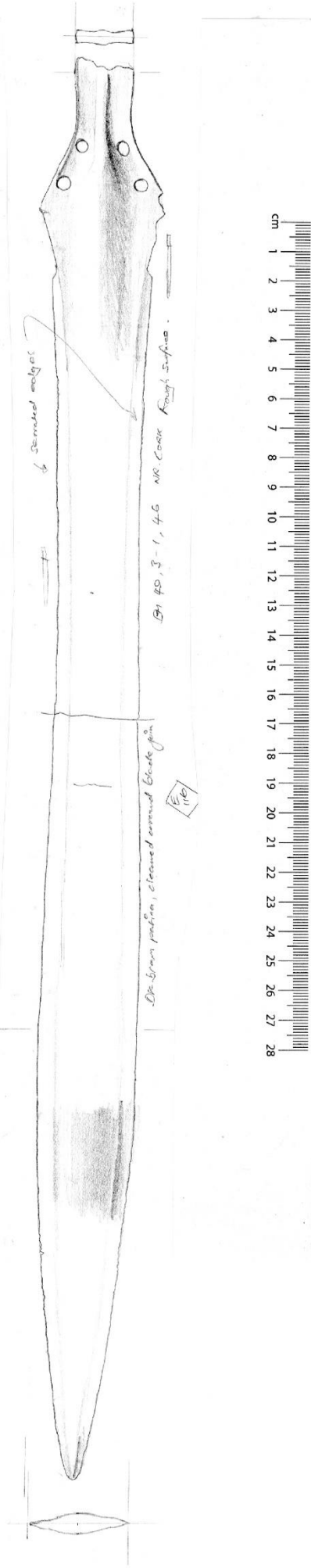


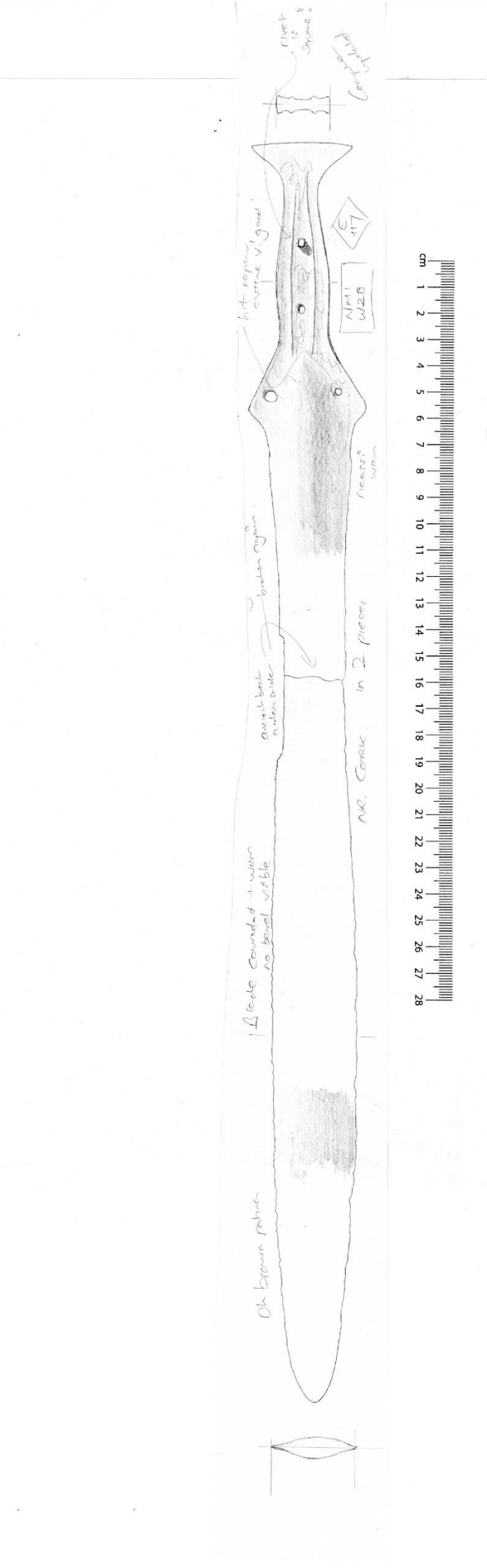


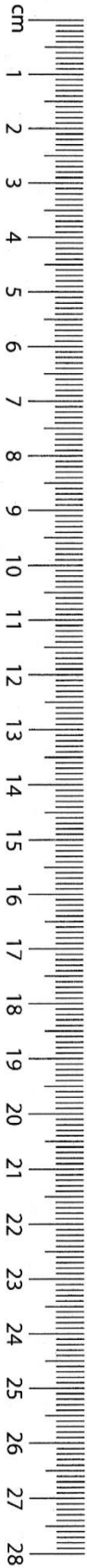
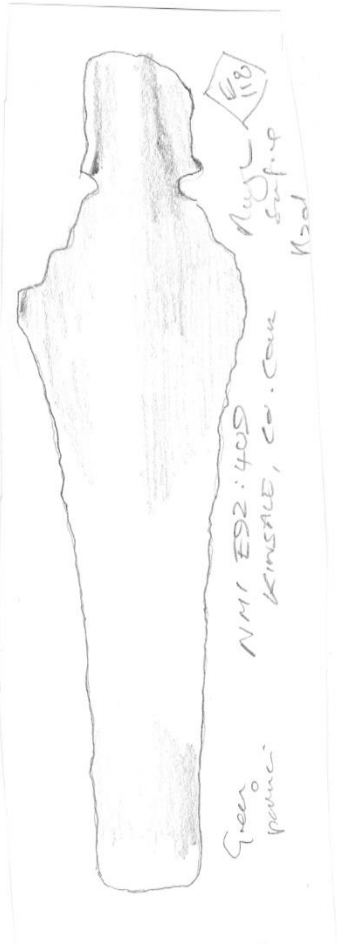




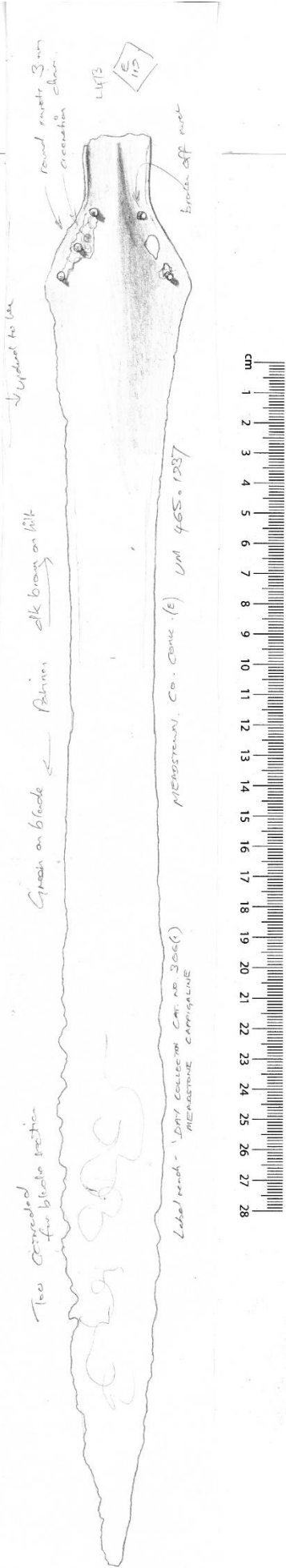


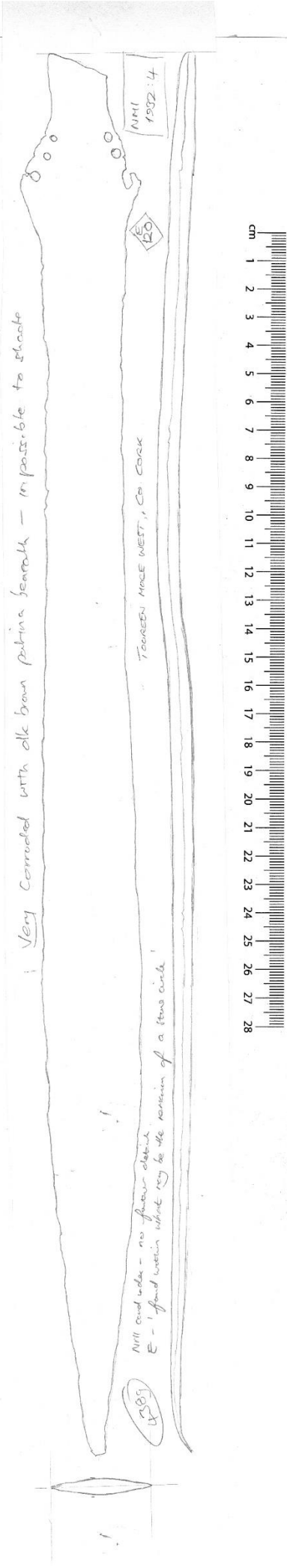




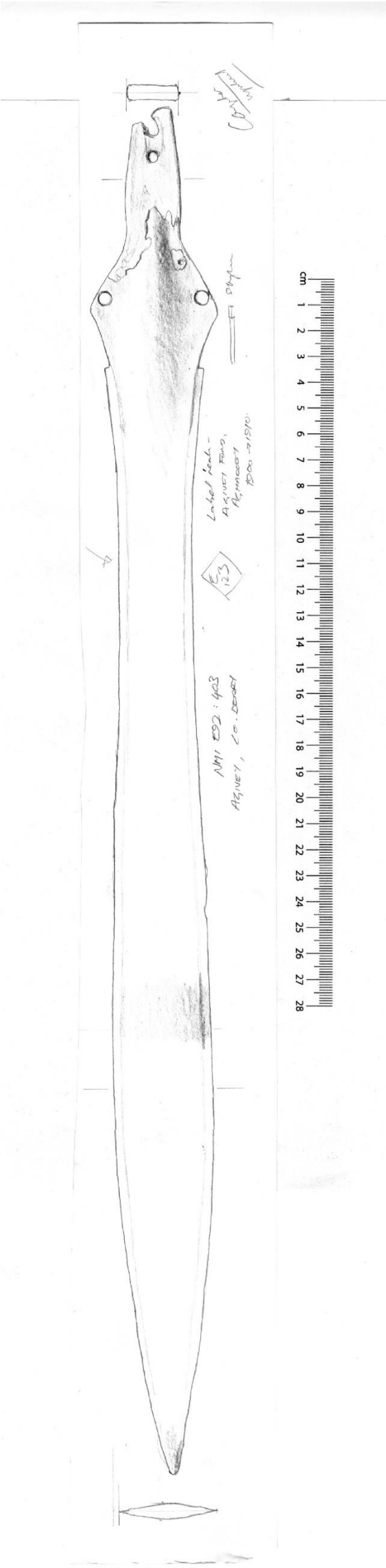


FILES OF THE D.M.
465/1227
1911: 167

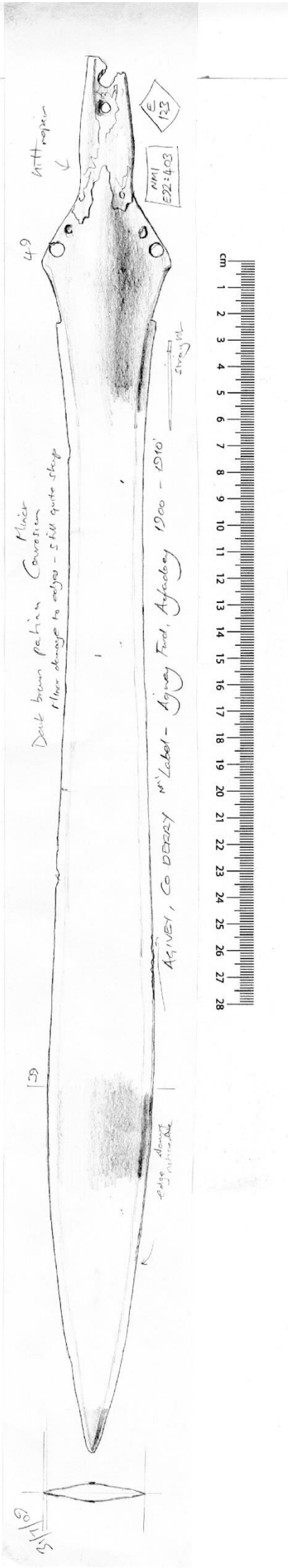


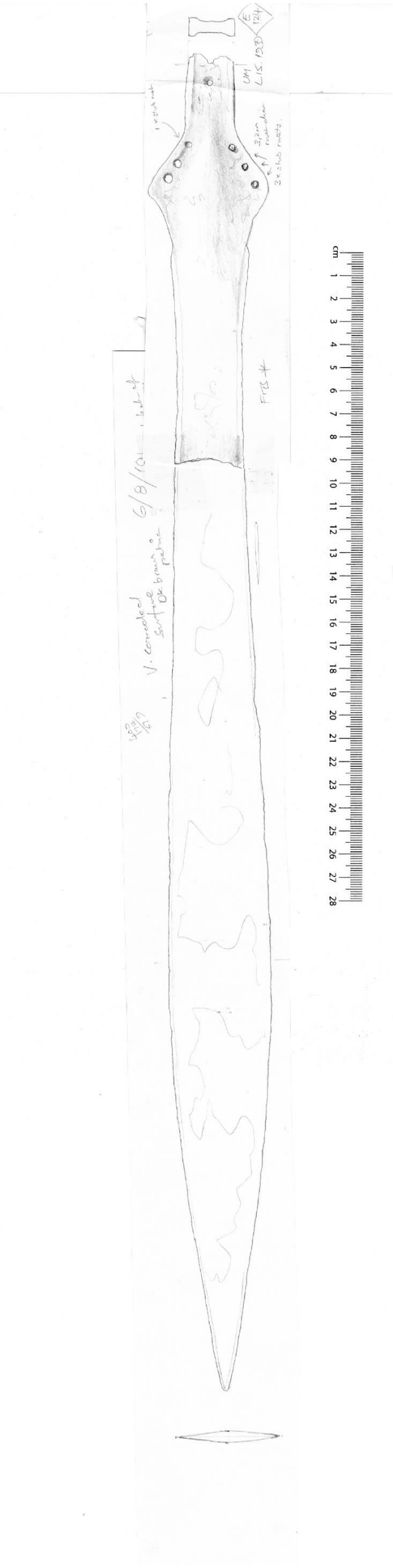


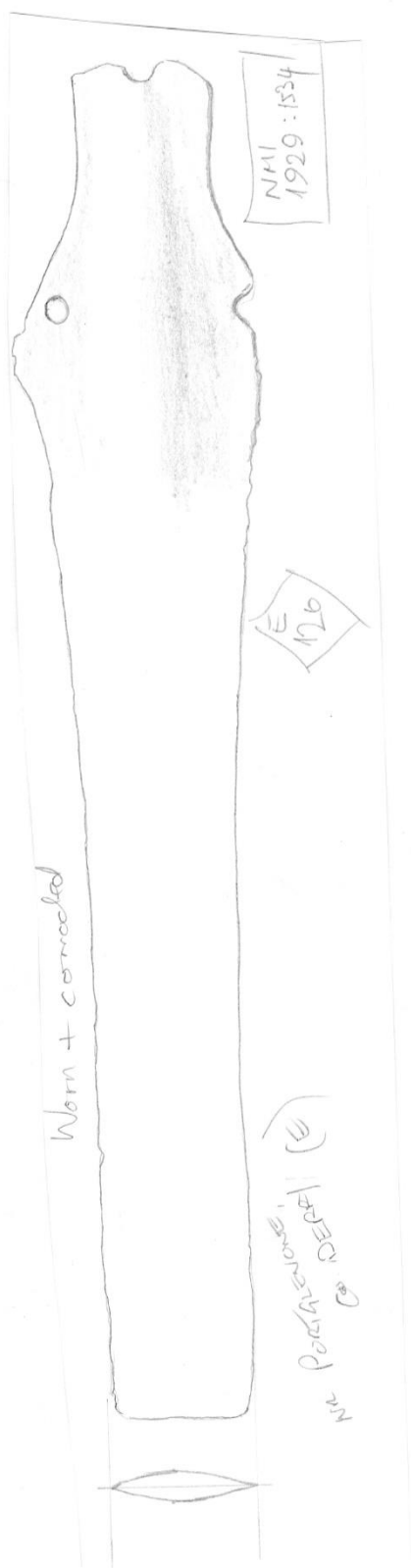
123

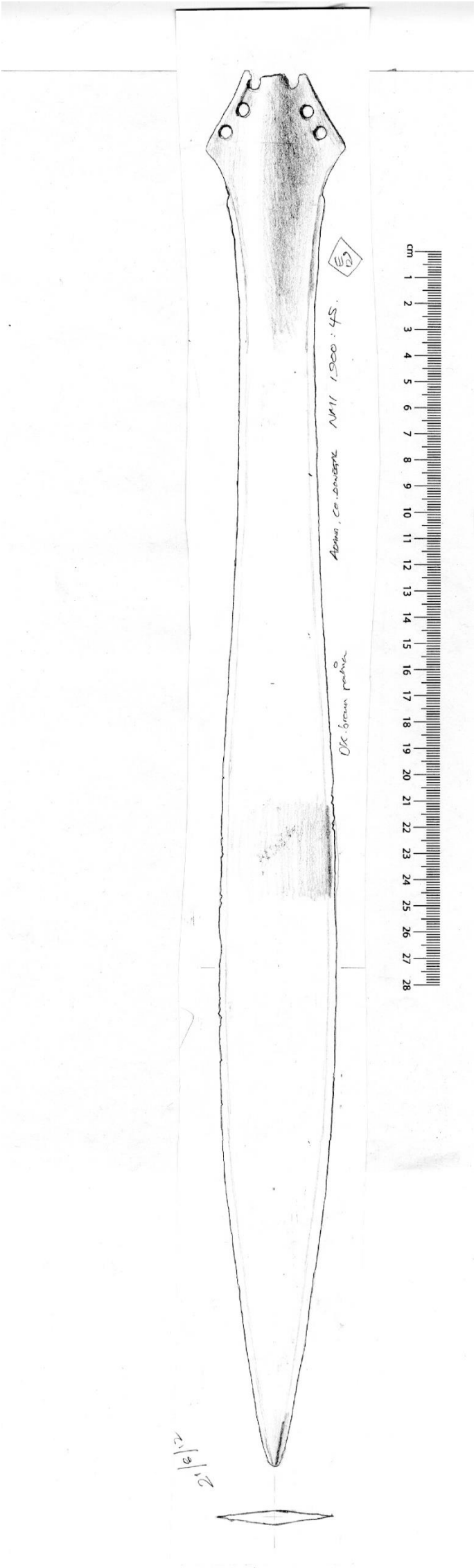


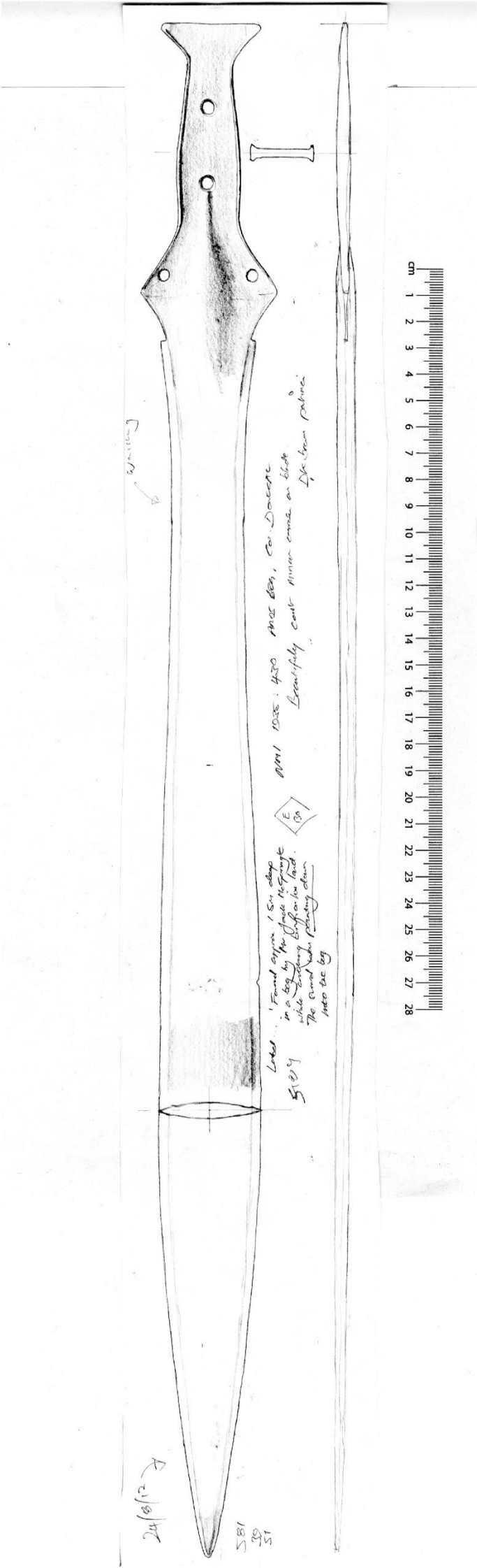
123 (2)

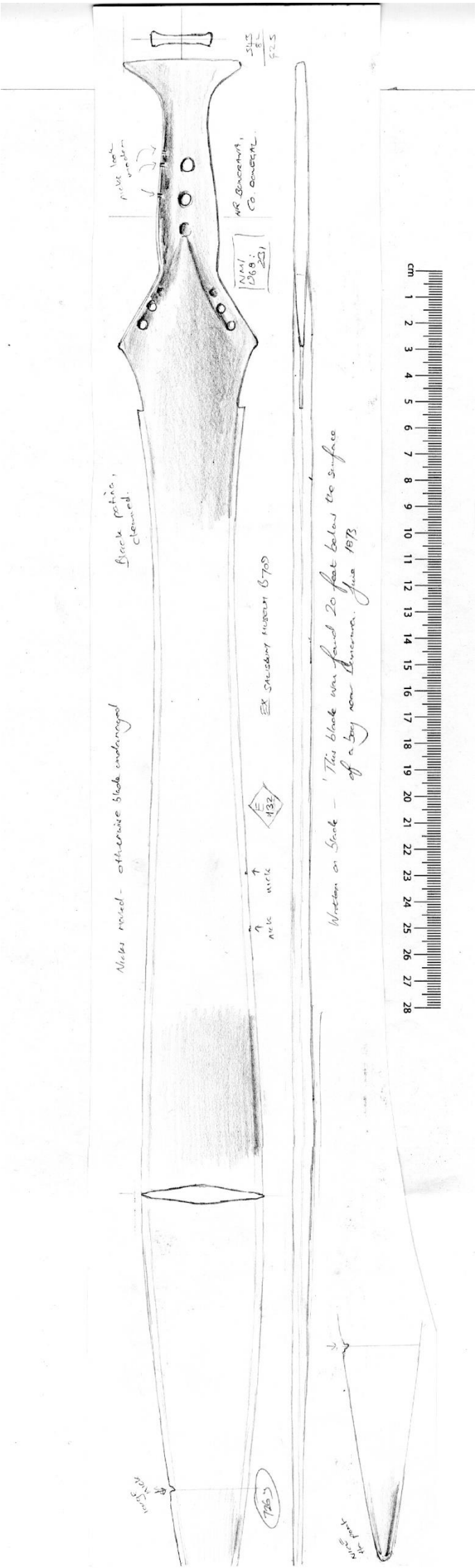


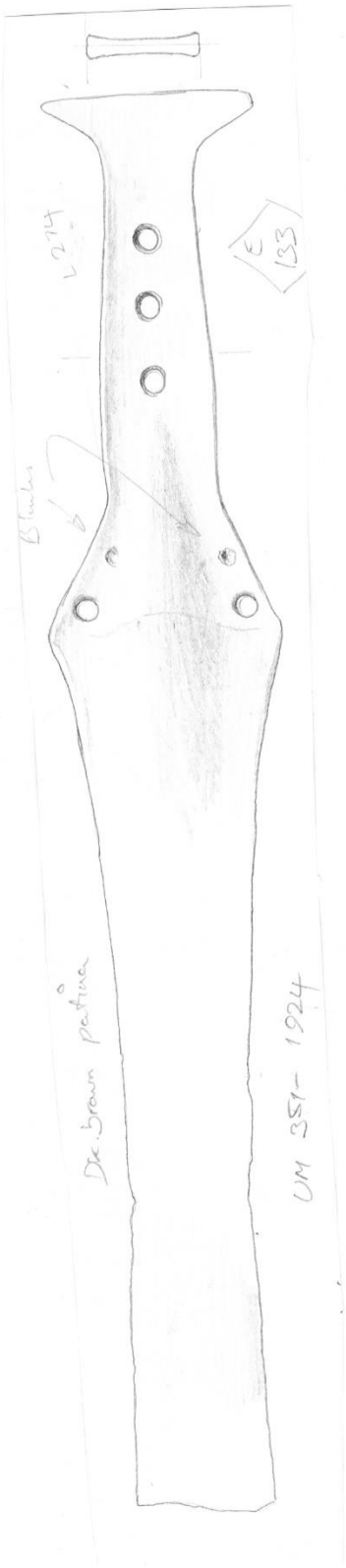


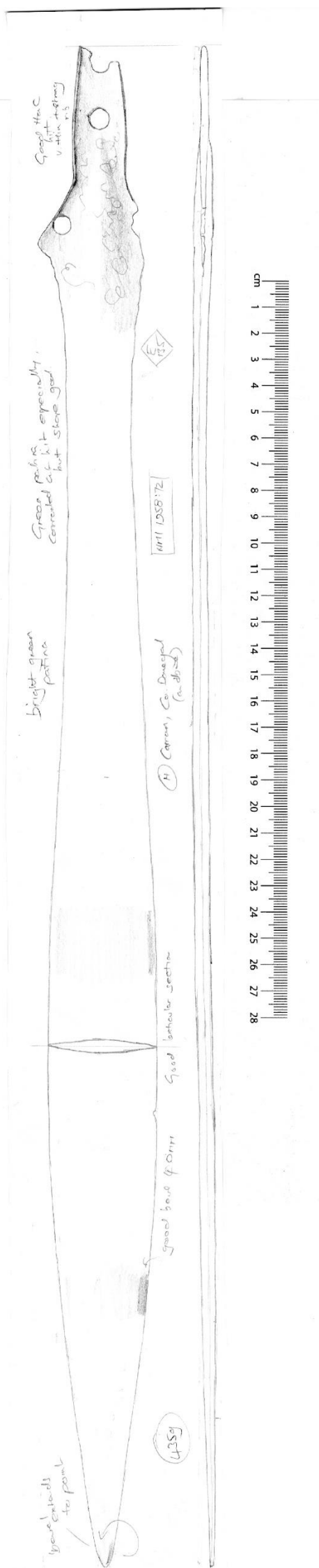


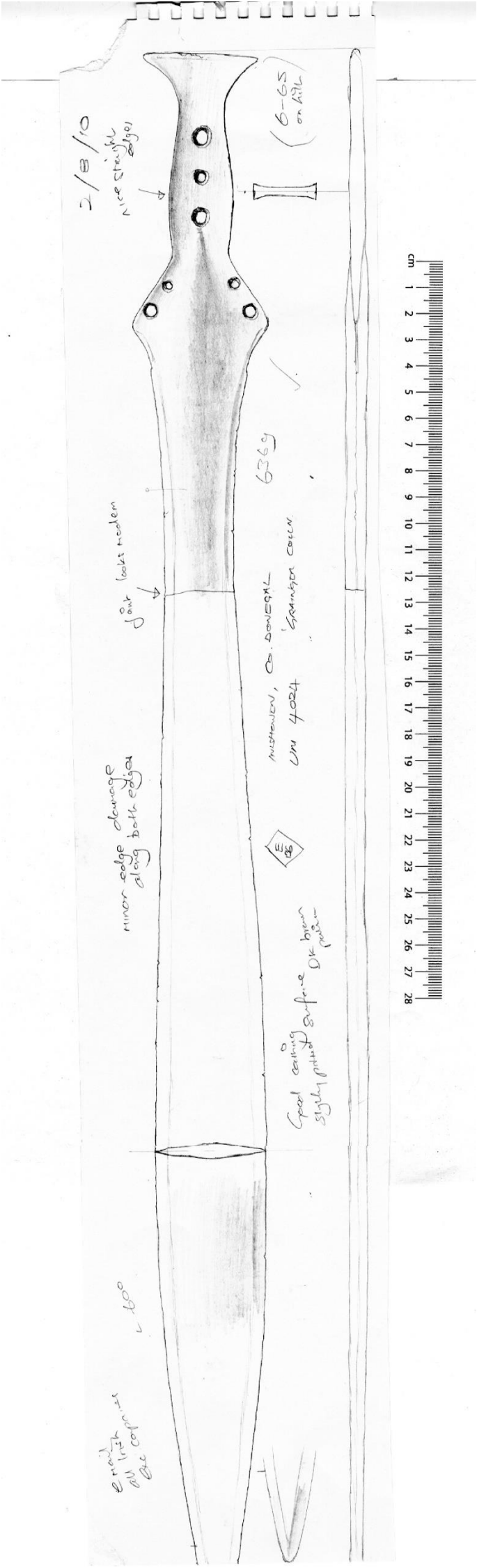




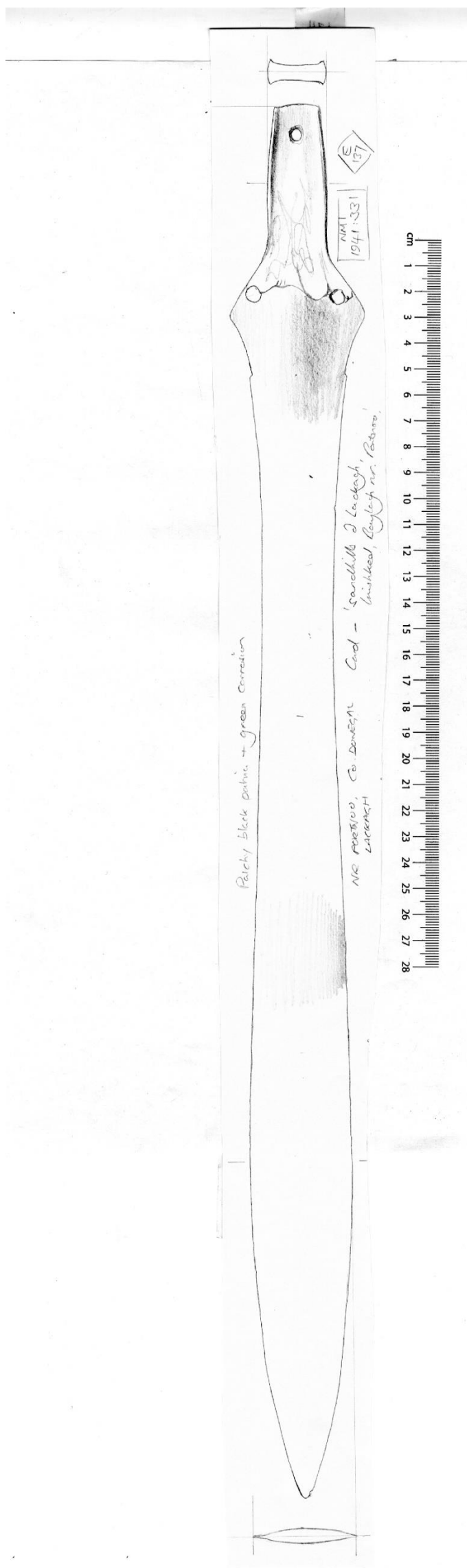




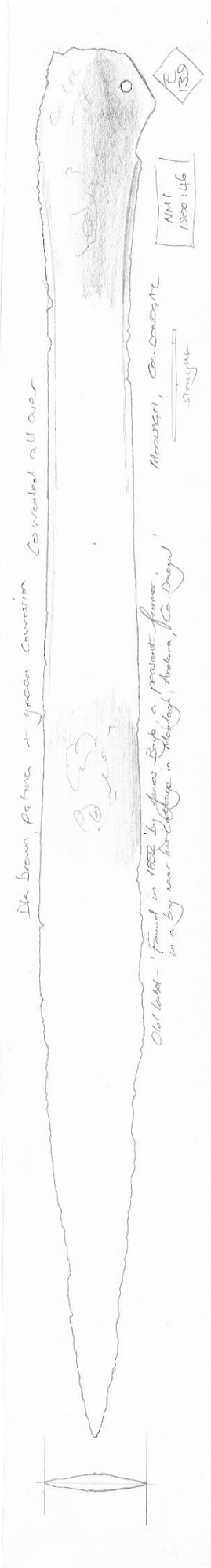


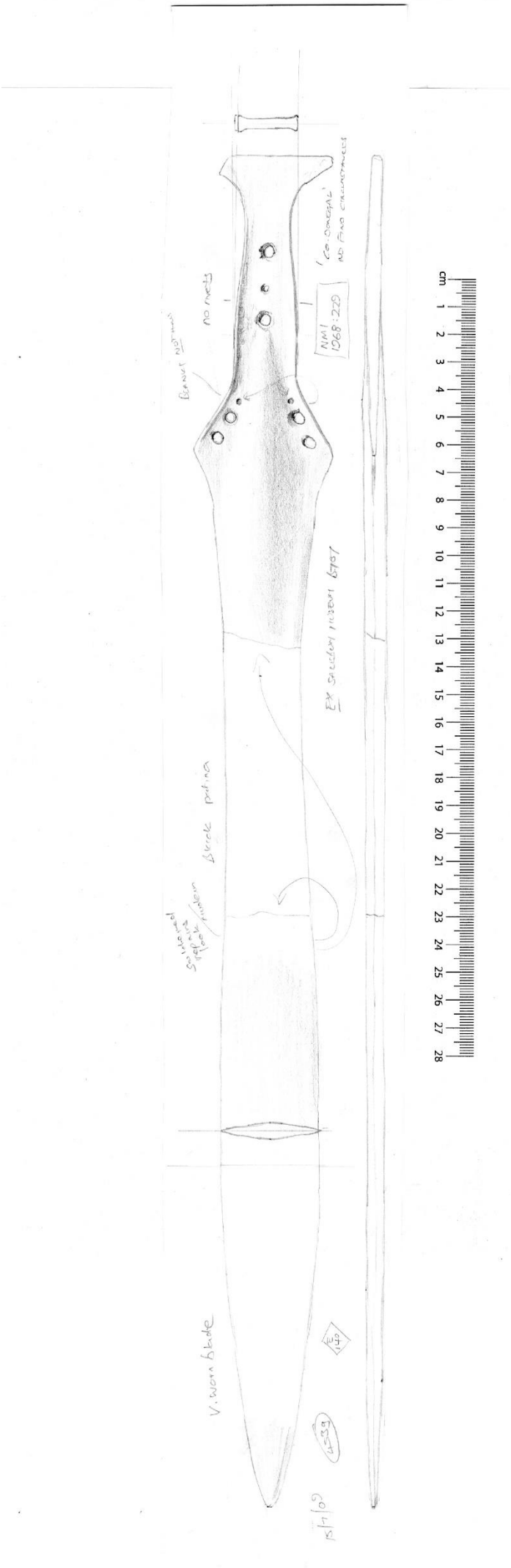


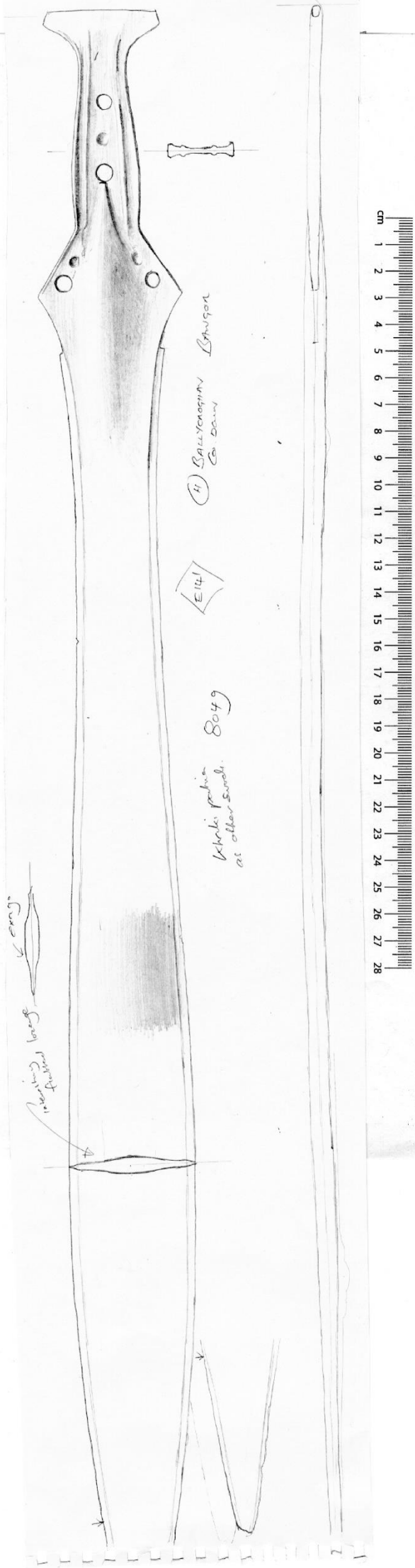
137

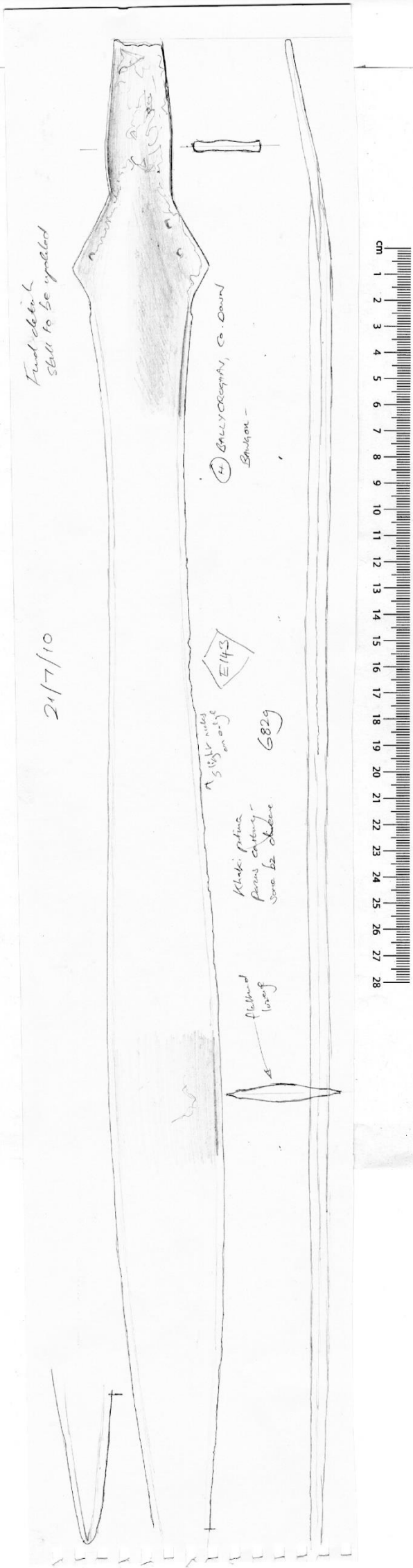


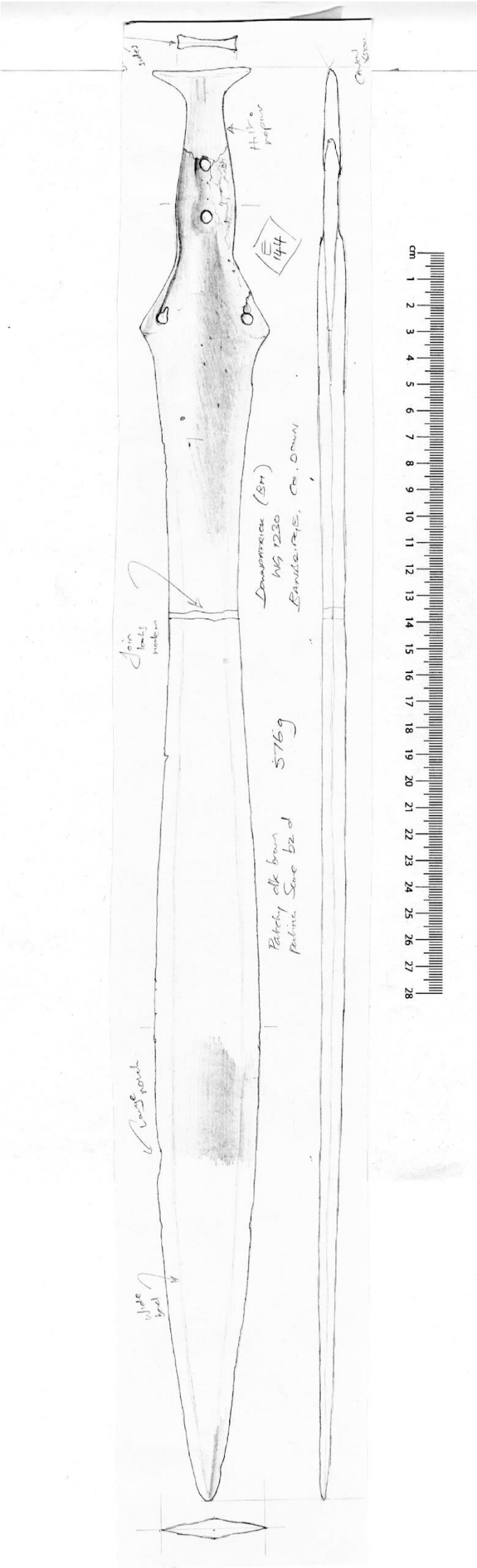










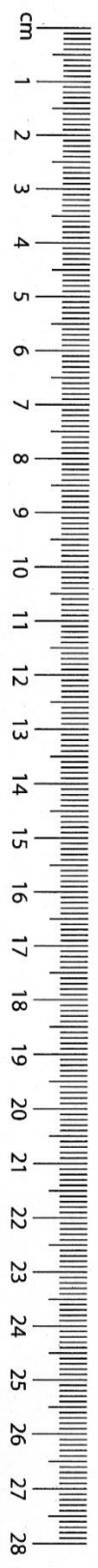


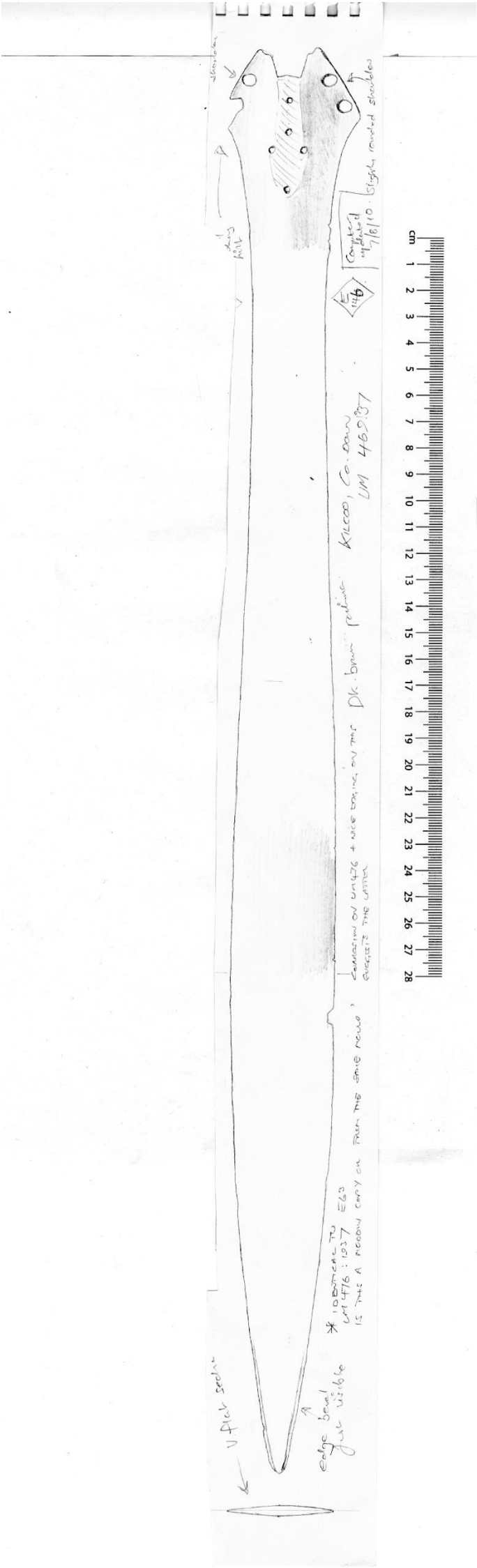


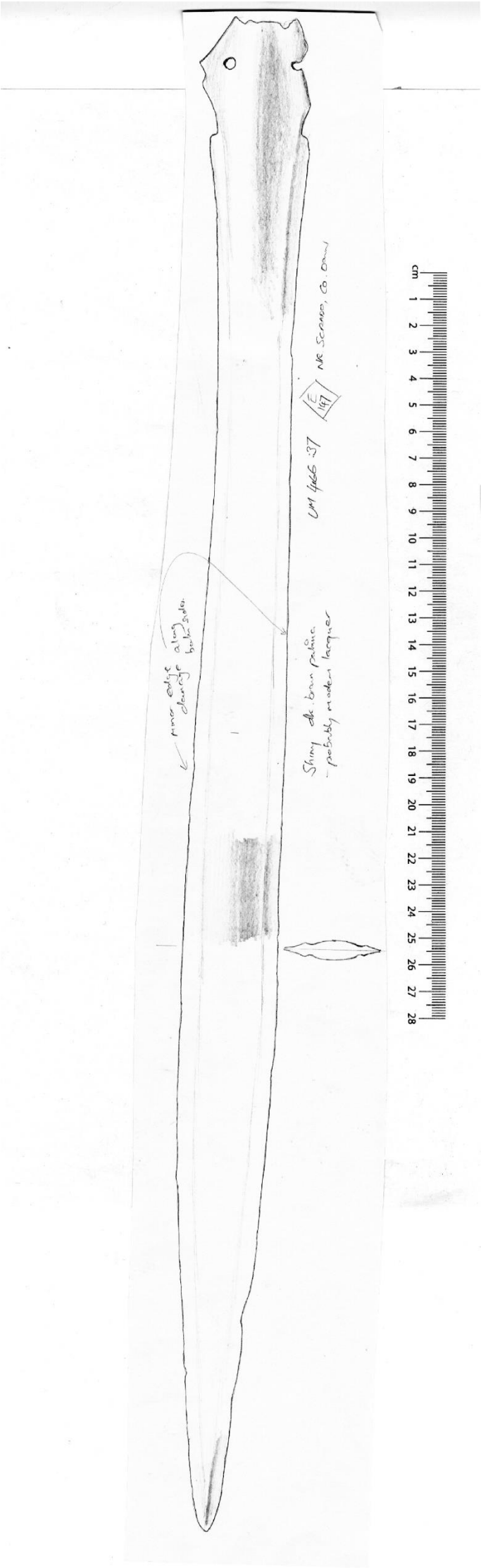
E
145

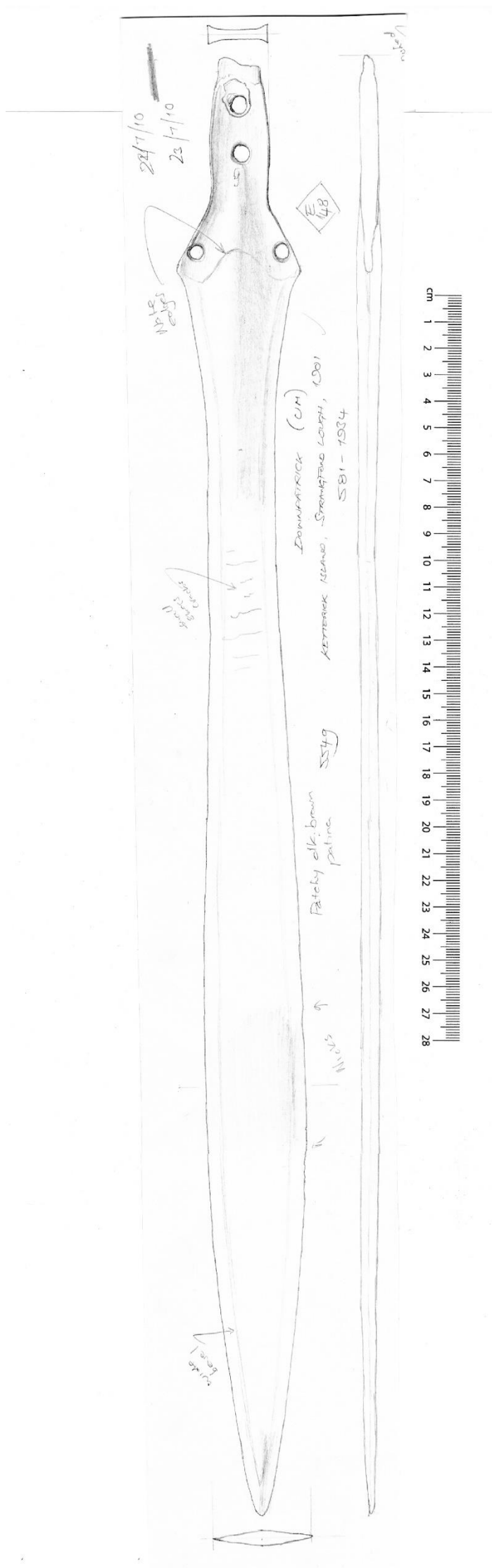
Nov 1976: 75 cm.

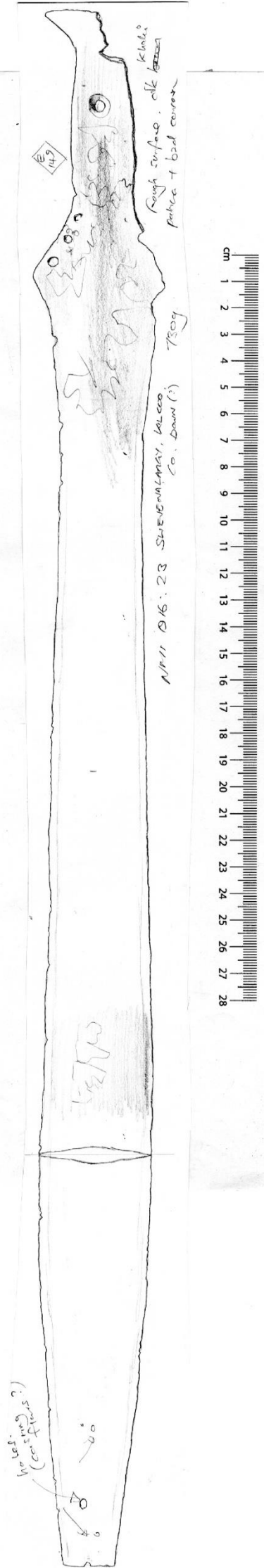
Ok. brown over pattern

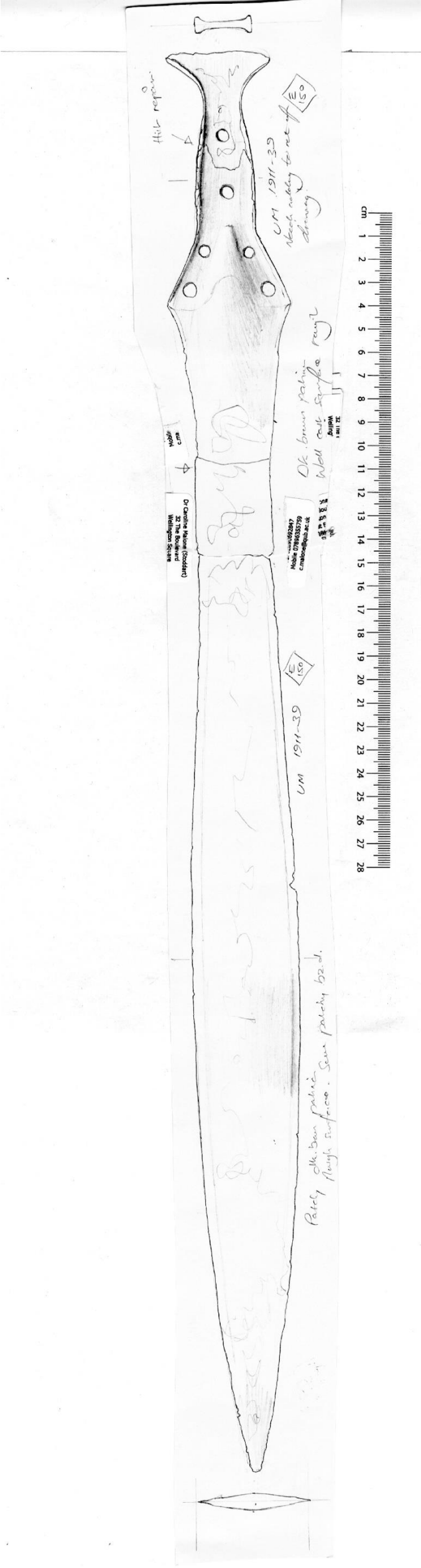




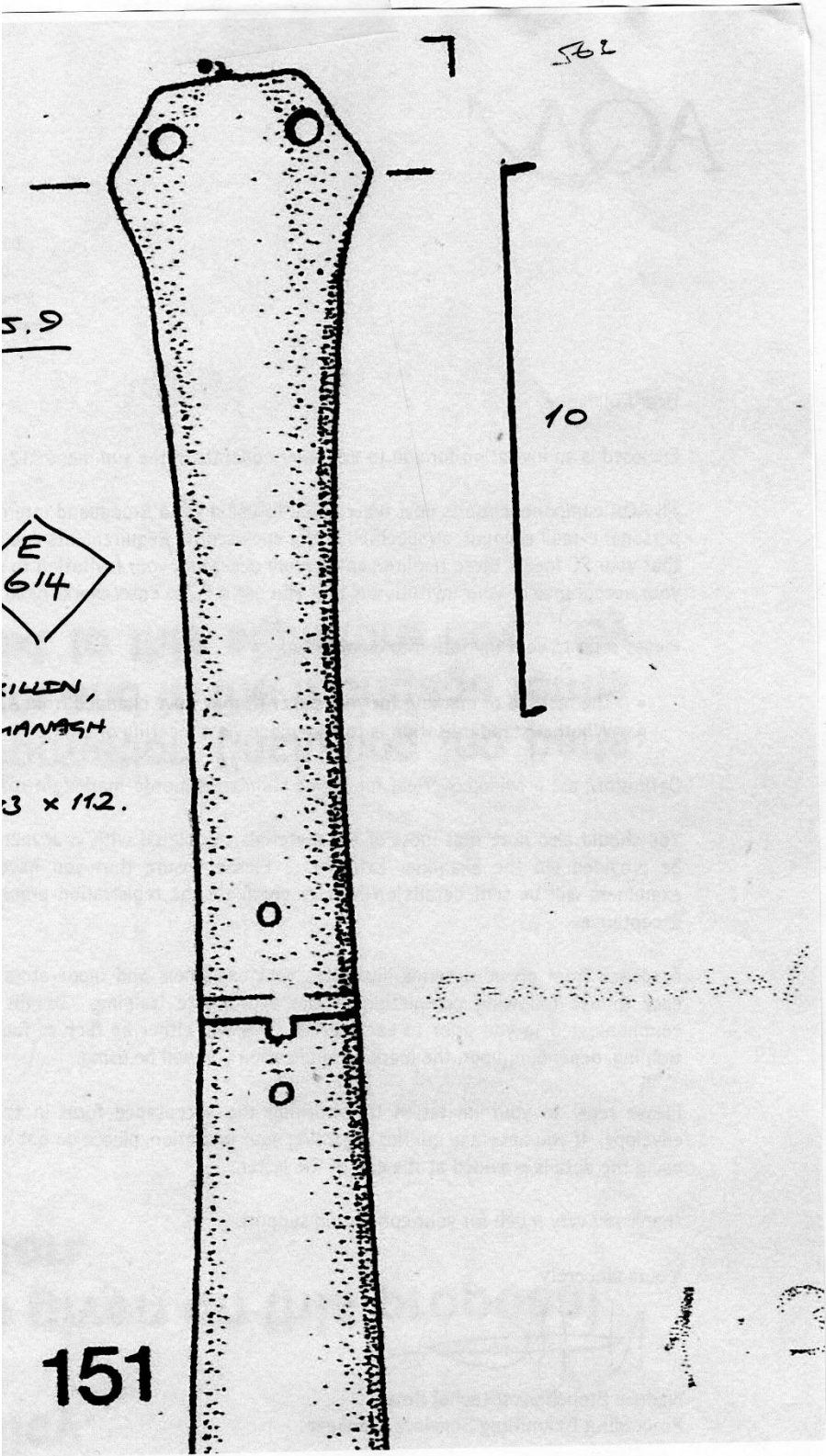








151



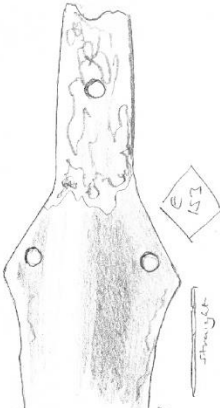
60/12/05

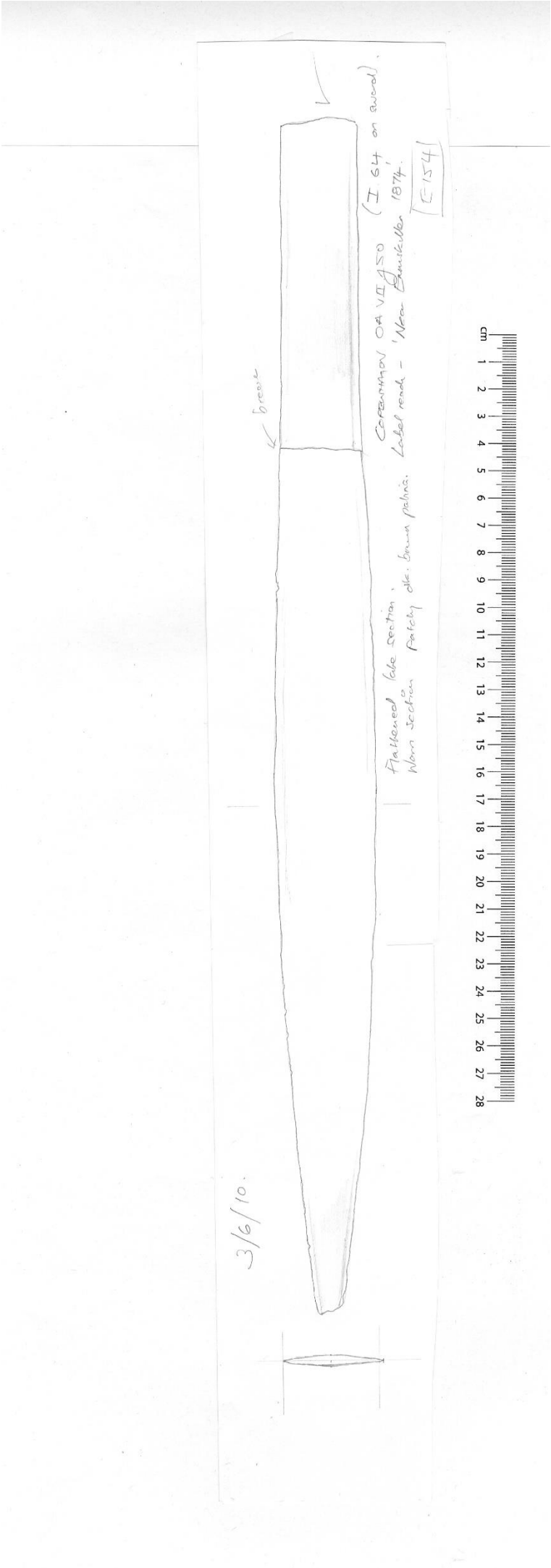
Black patina + green corrosion

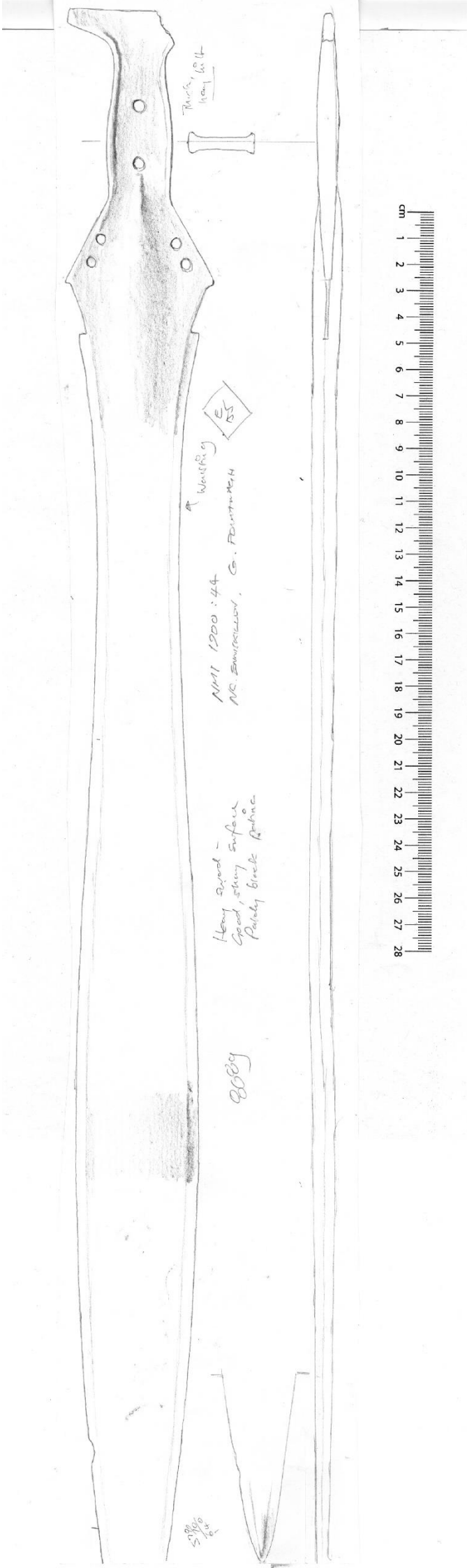
No curl See note on Egm - label has together with L 1947: 8-9 but why?
* Note on label - "former individual collection" (?)

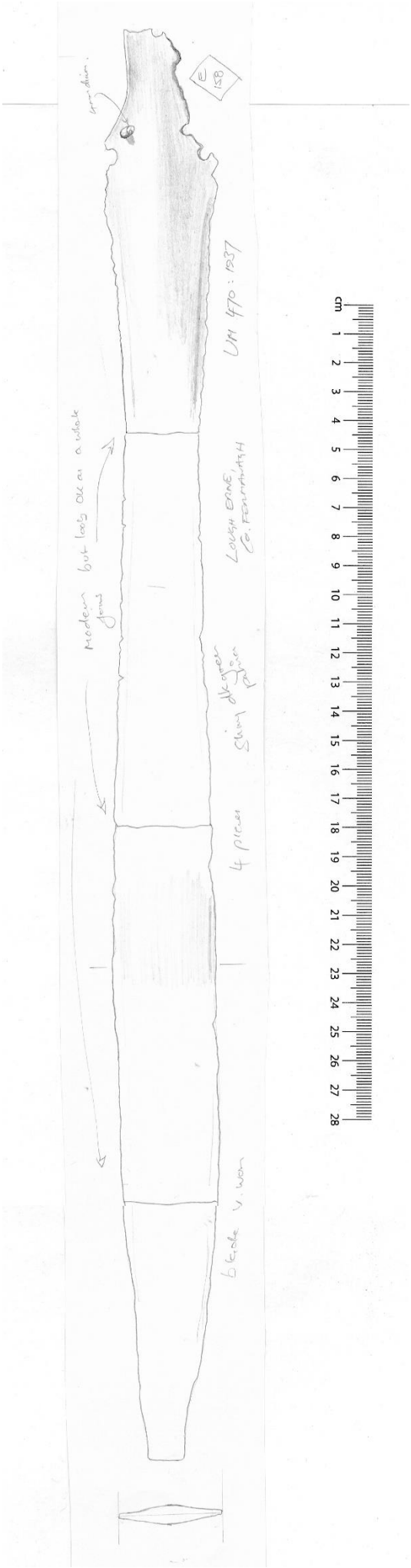
NH 1878: 27

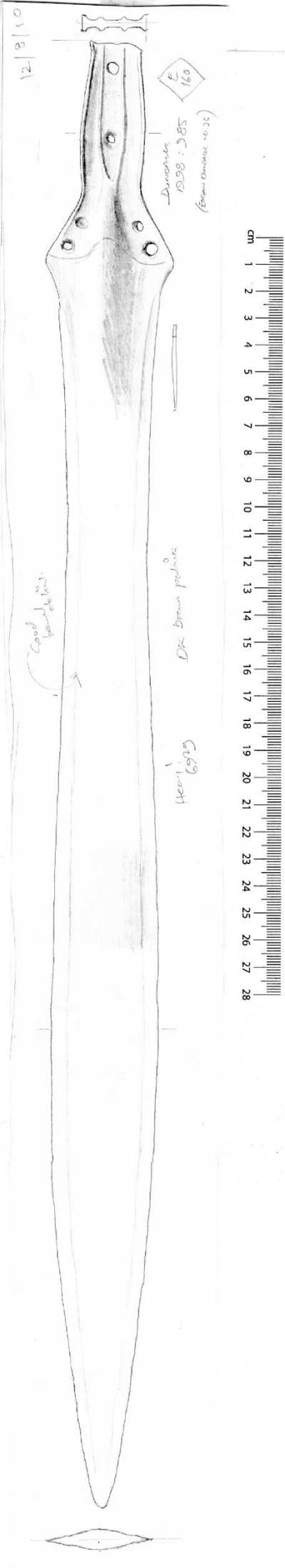
E 153

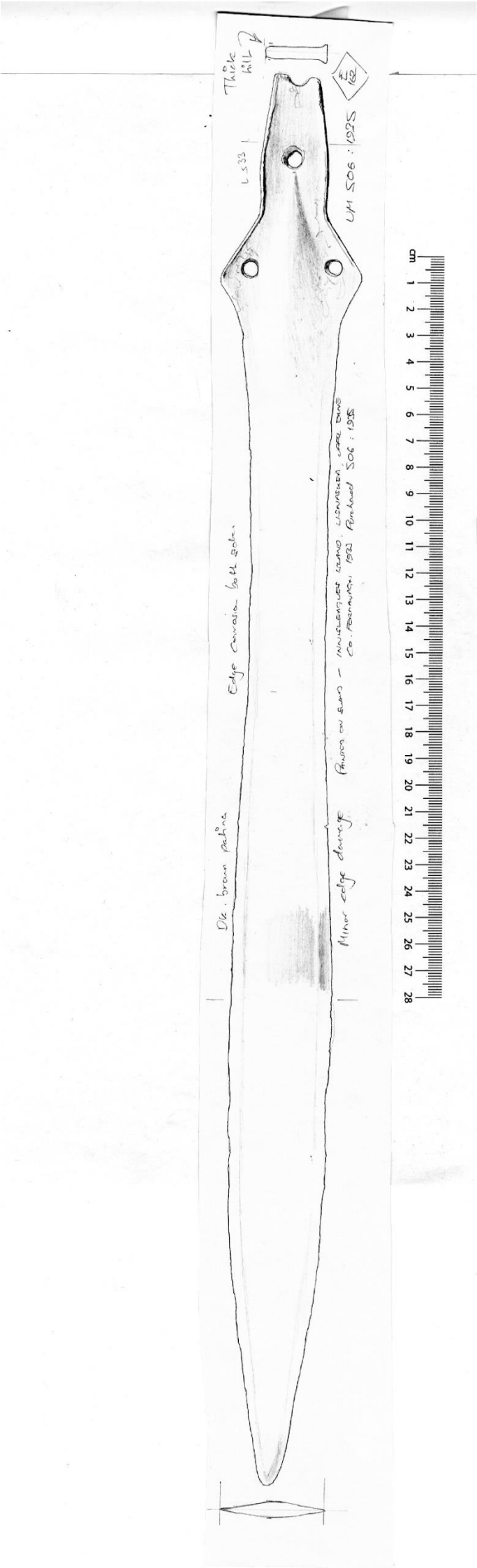


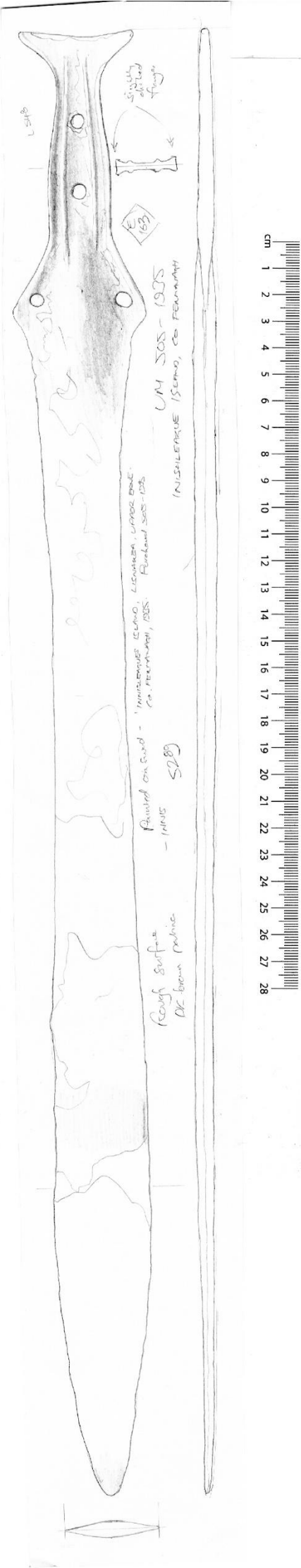


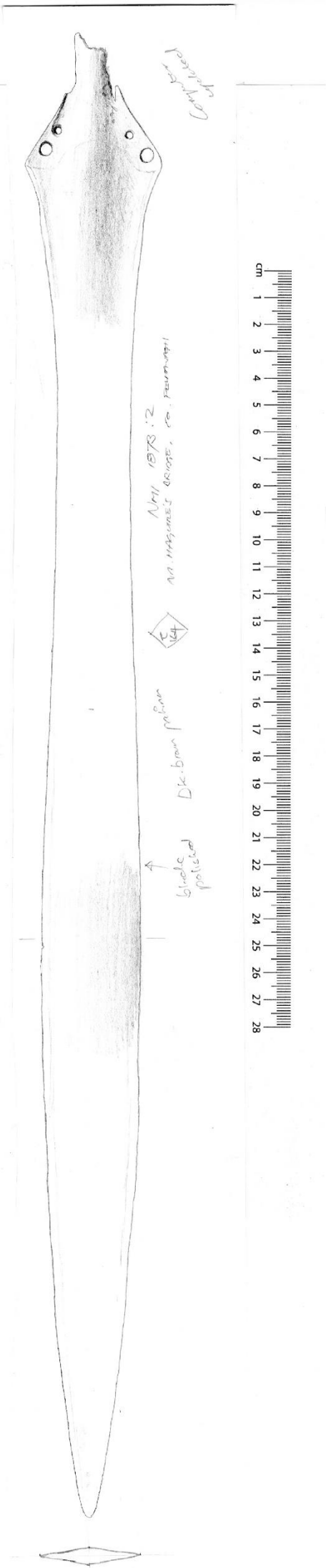


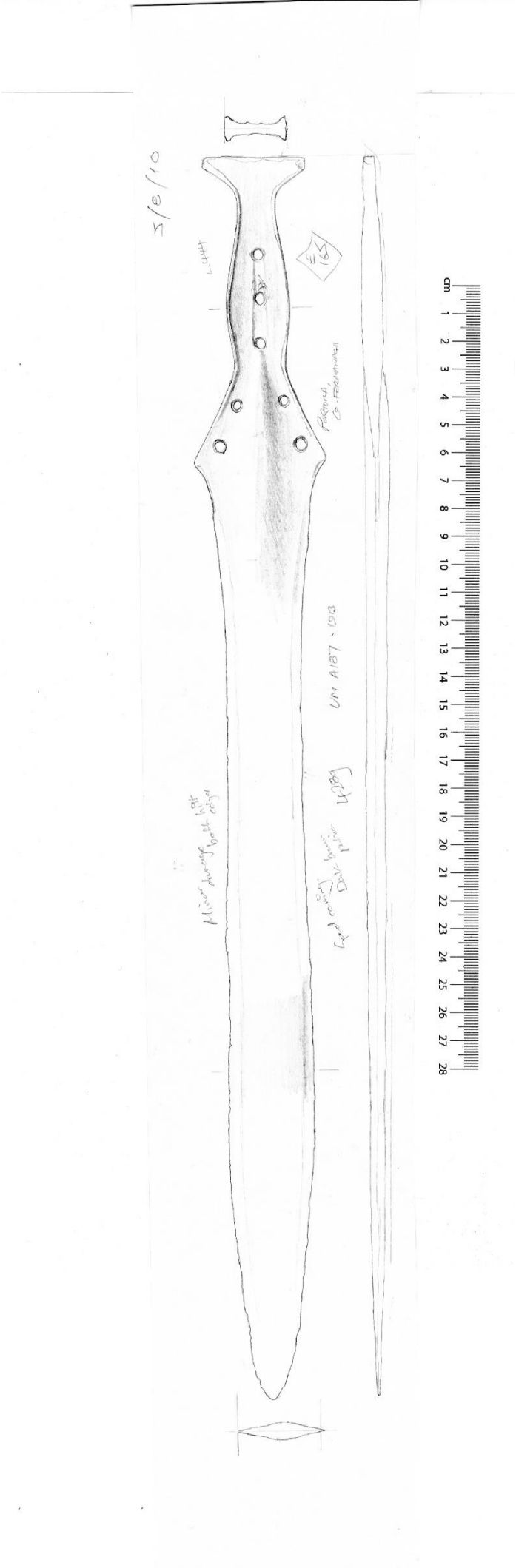


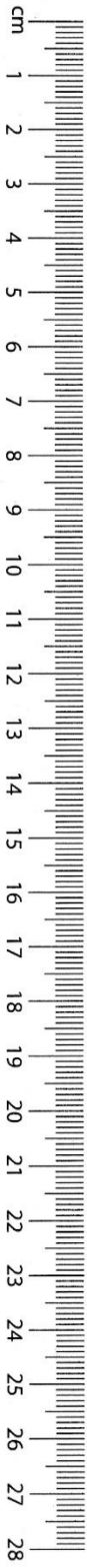
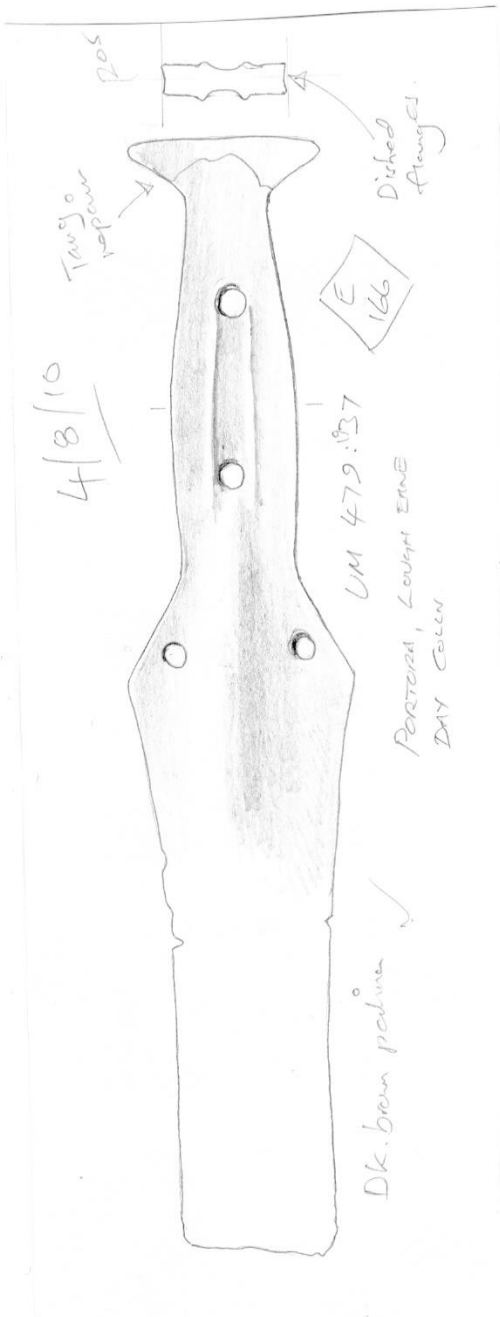


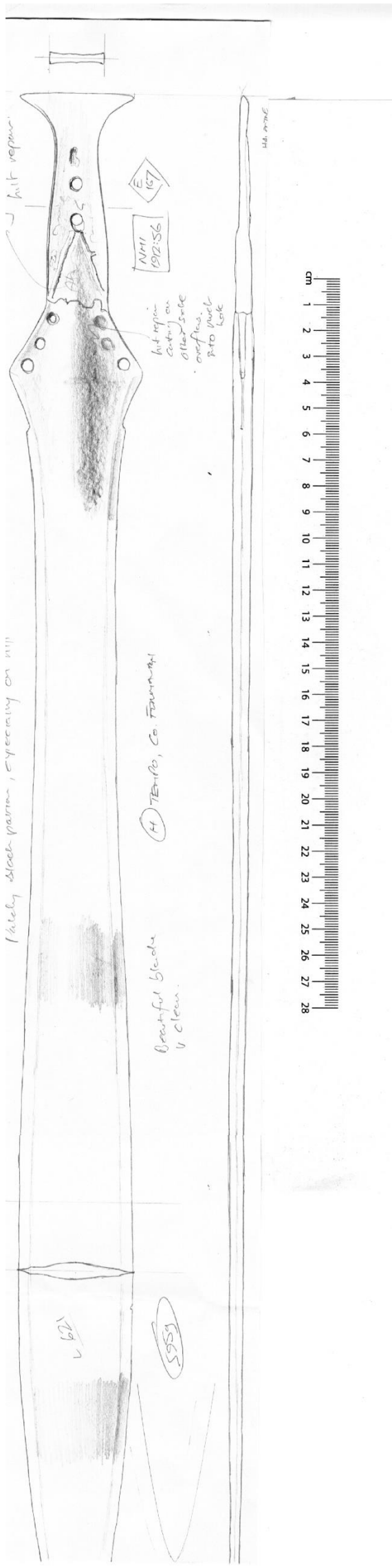


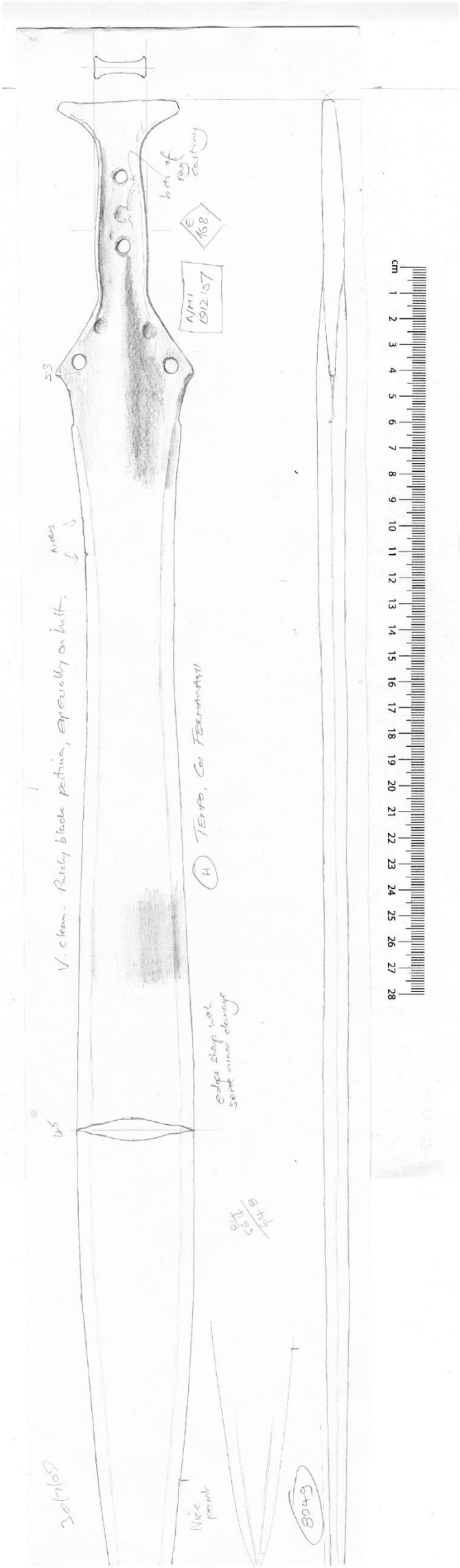


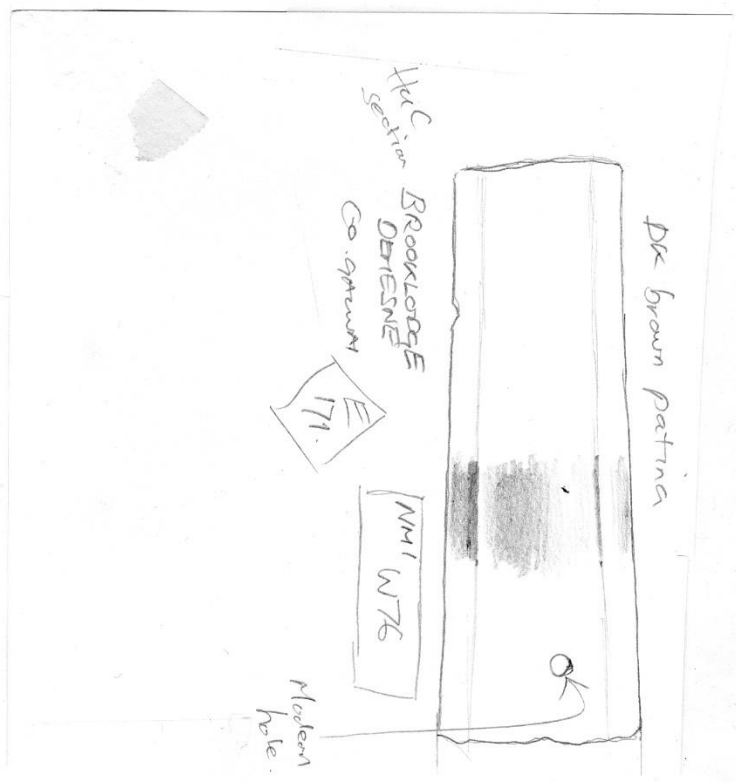


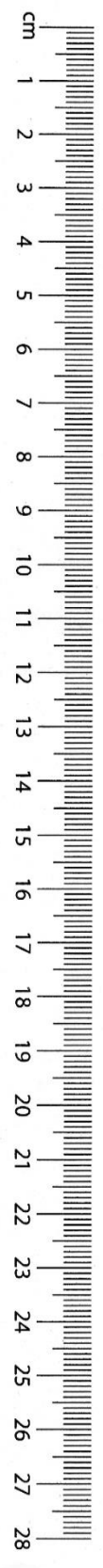


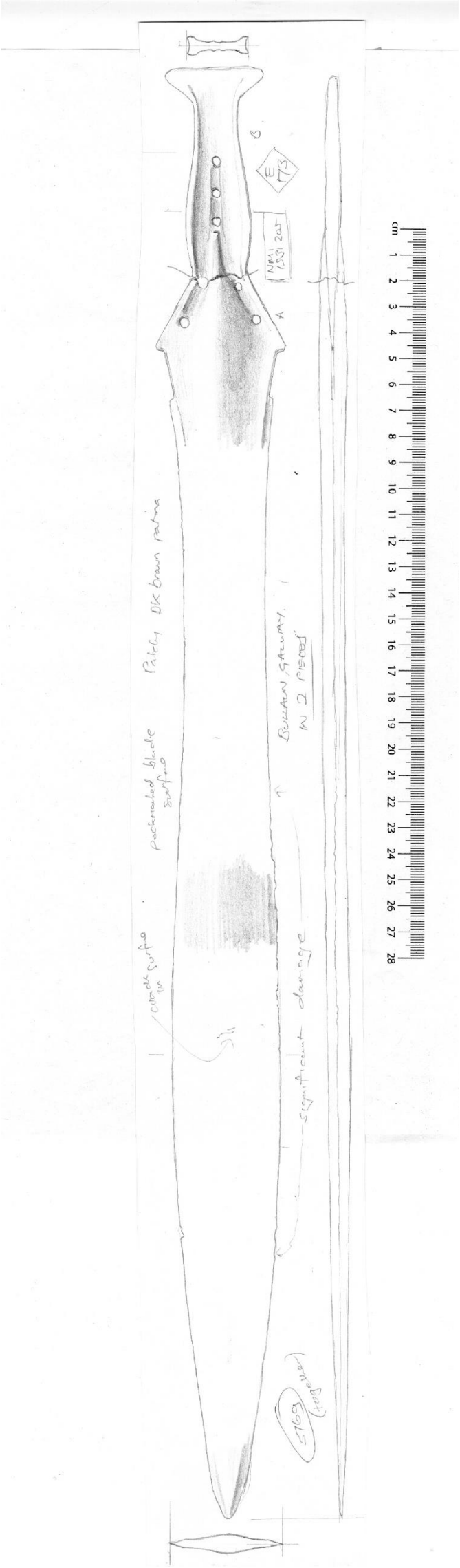


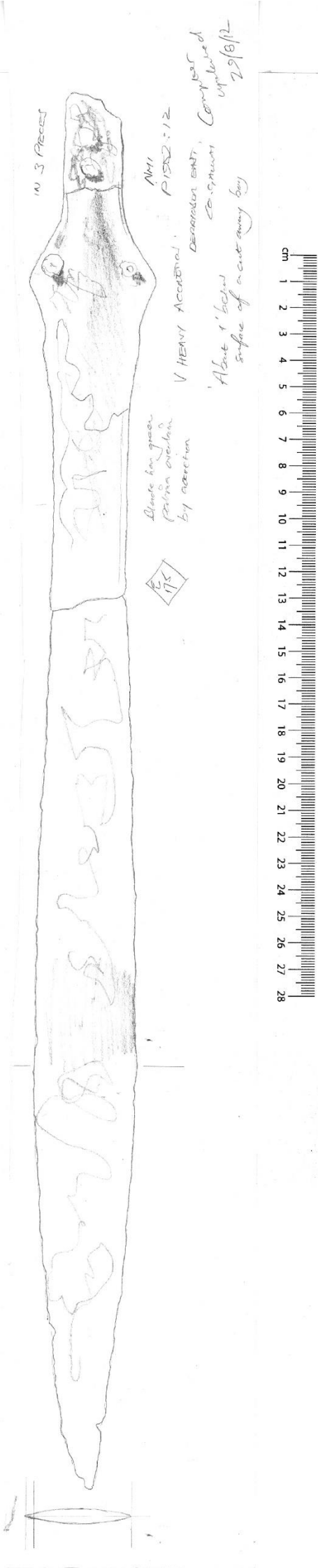












20/1/82

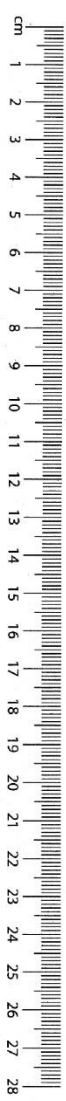
Interesting green pituitary
with brown accretion not covered
surface

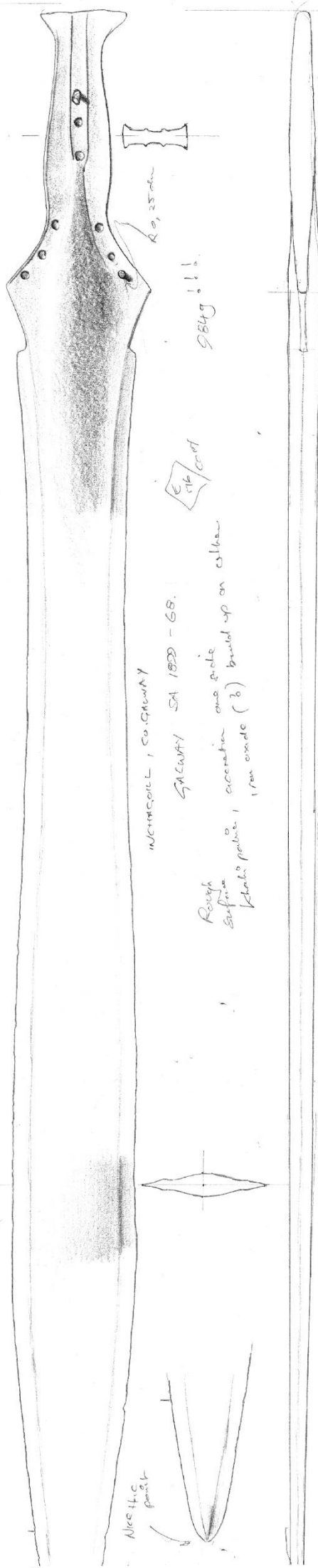
Found about 1' below
surface of a cut away bay. The accretions on blades and lamellae
caused of submerged leaves of monocotyledonous water plants
which often surrounded the water. Now as of the water was a fragment of the wooden lamella plate, identified as oak.
Preserved by fresh water, 100% glycerol

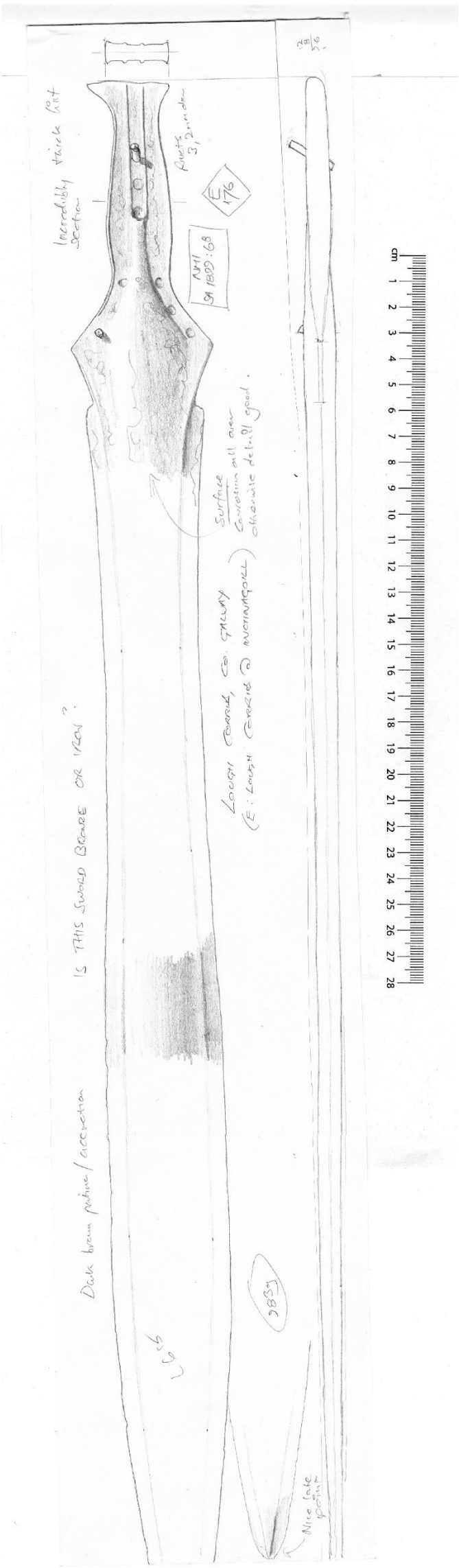
3 x press DECEMBER 1982
CO. Gwynn

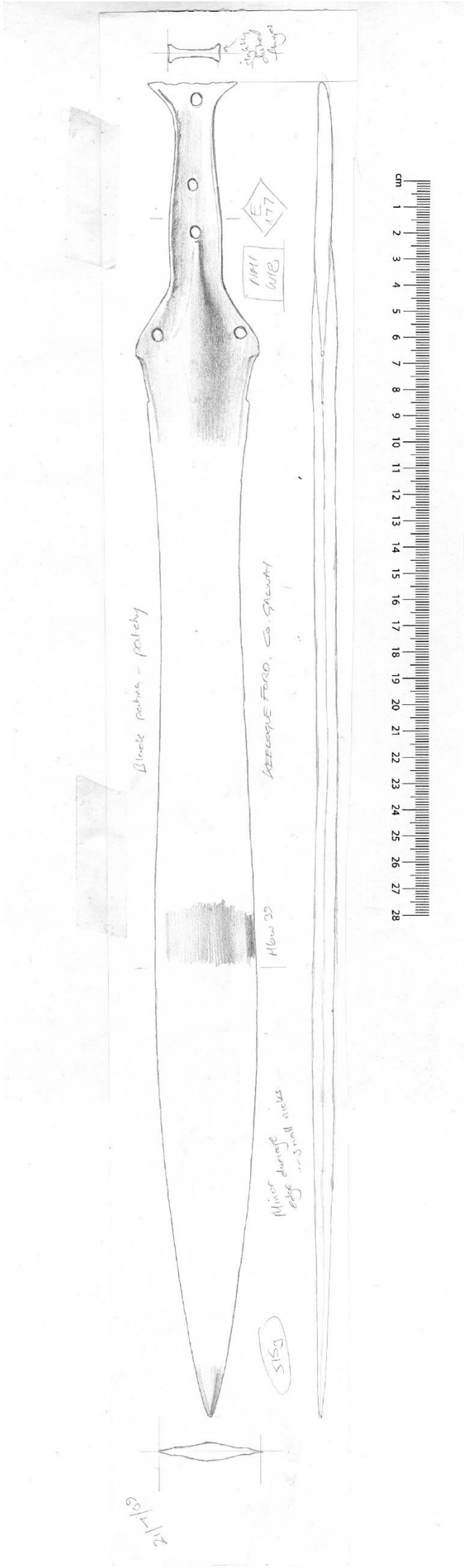
NM11
P1532/12

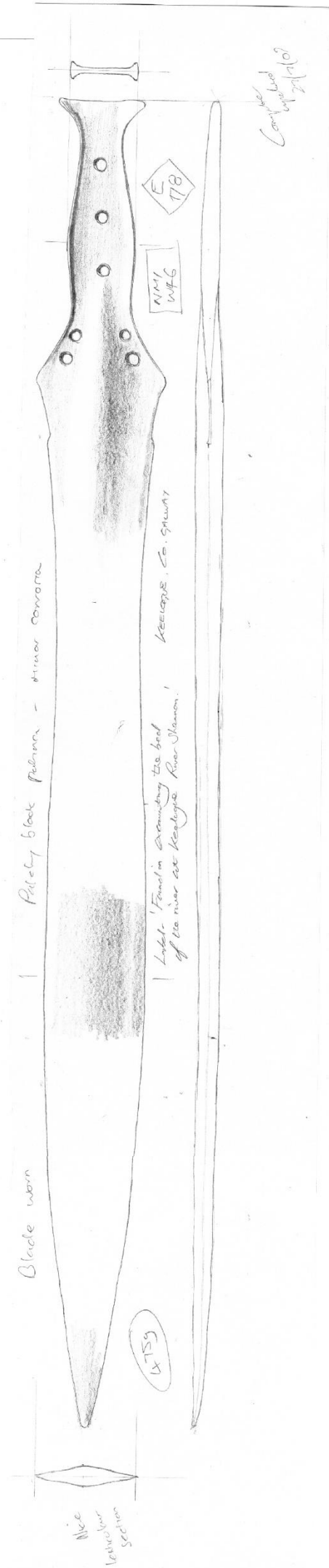
175

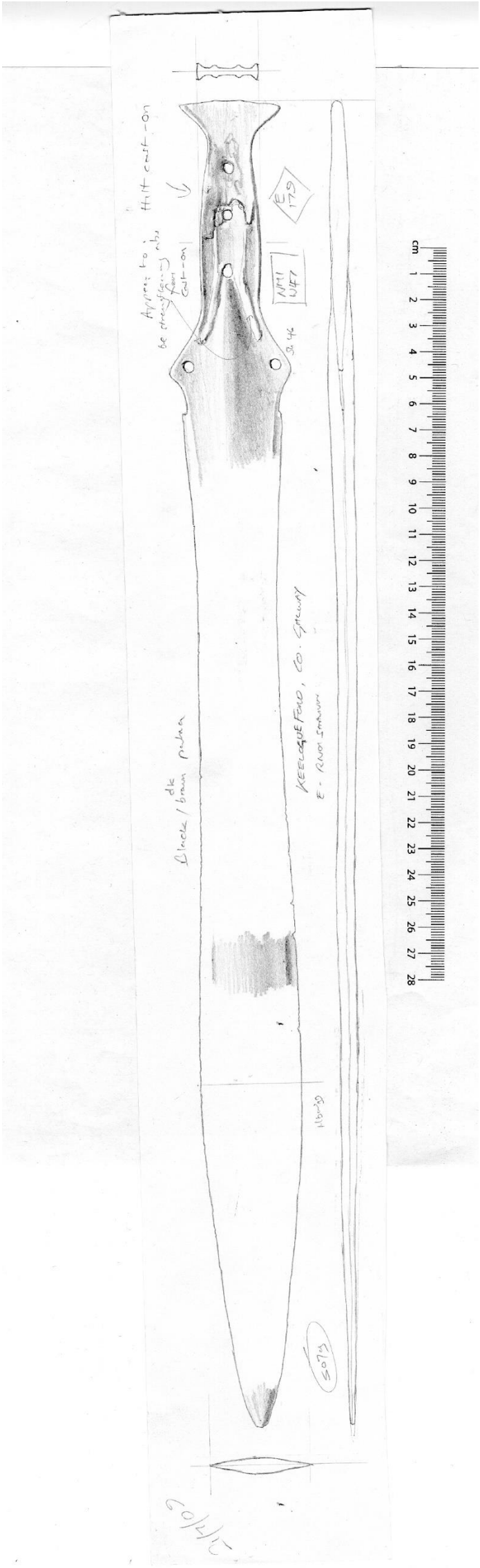


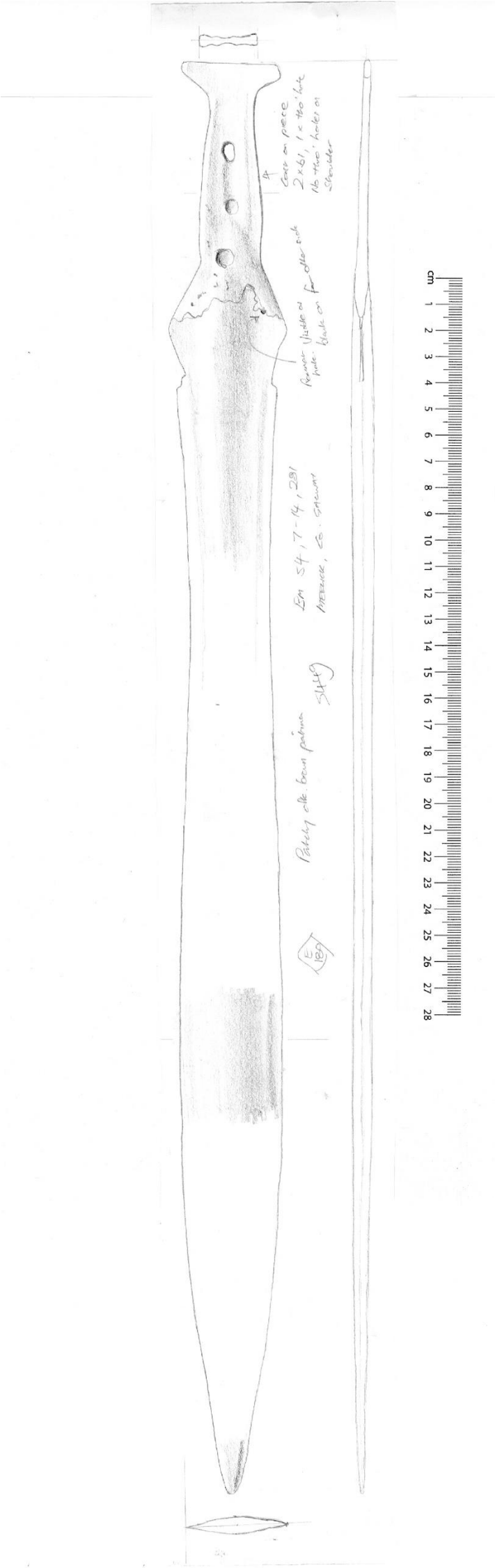


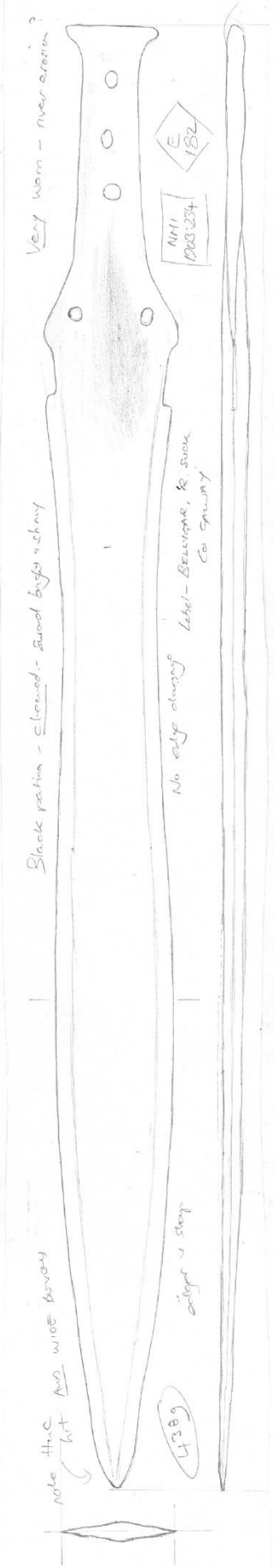




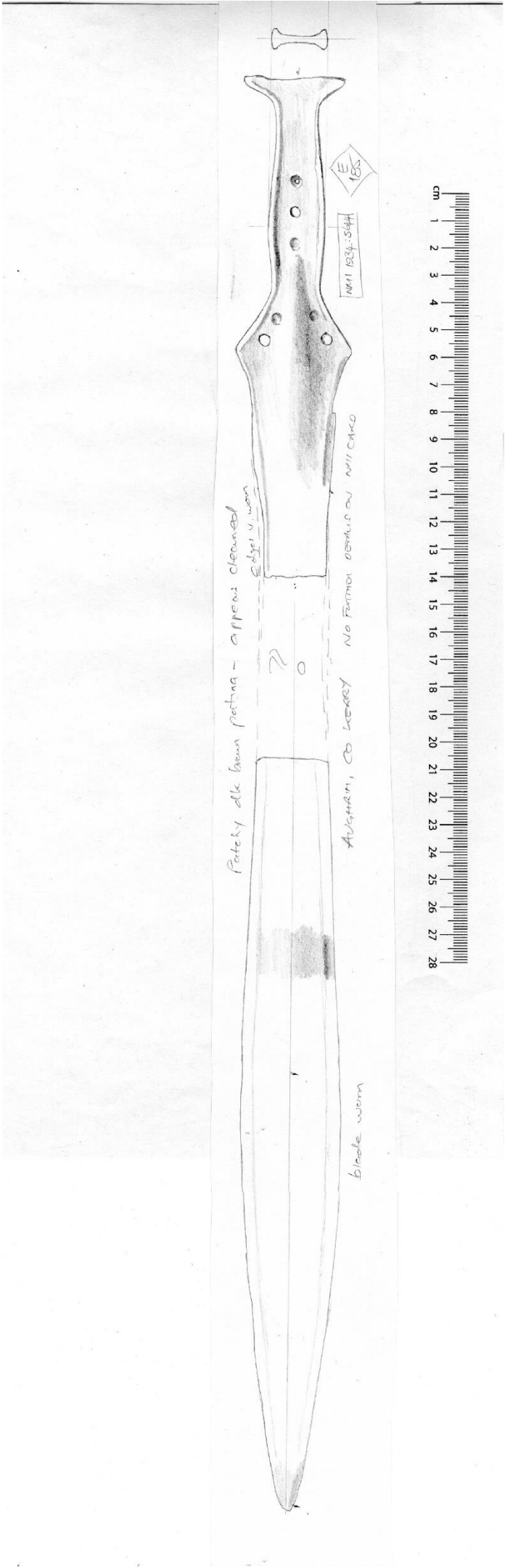


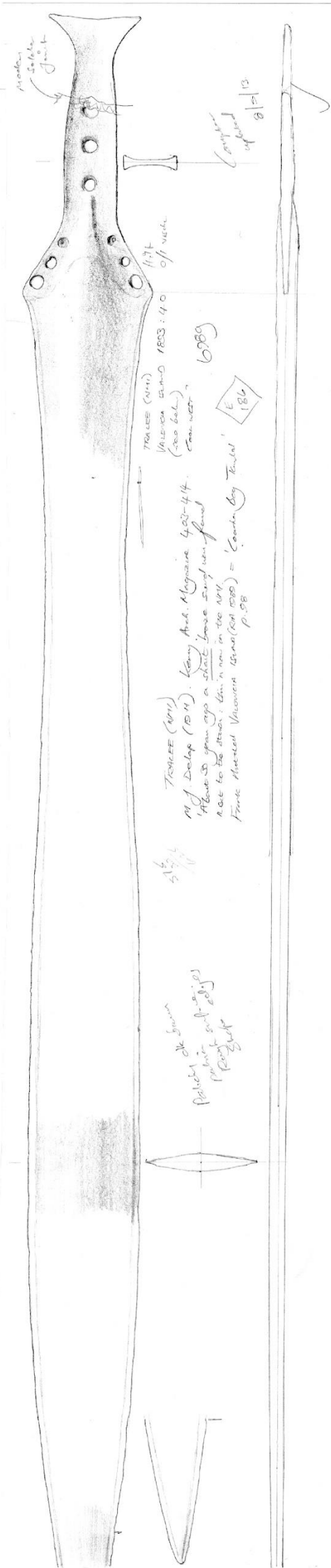












modern
socket
joint

11.74
off vert

TRACE (MM)
VALLEY ROAD 1853: 40
(see below)
Can. ver.

6989

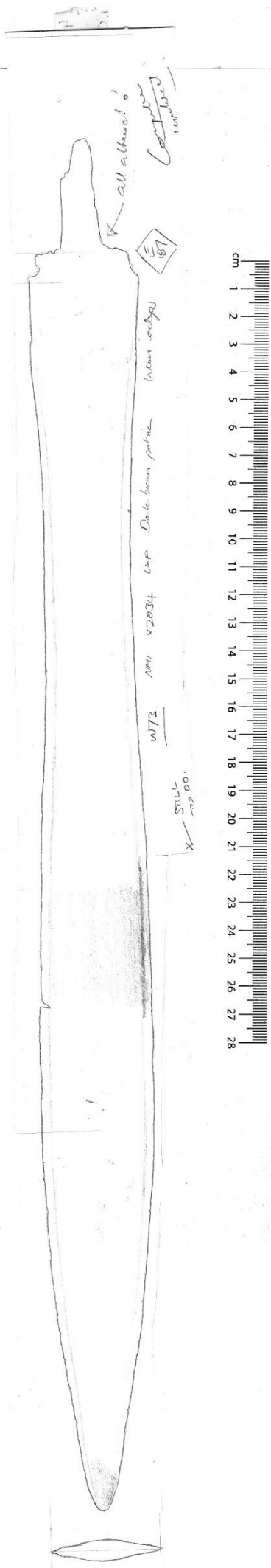
E
186

TRACE (MM)
M. J. Dole (1914). Kang. Arch. Magazine 423-44.
Above 30 gran eggs a short base sand was found
near to the stone: this is not in the NW
Finds marked Vancouver Island (1914 1920) = 'Coastal Bay Trench'
p. 98

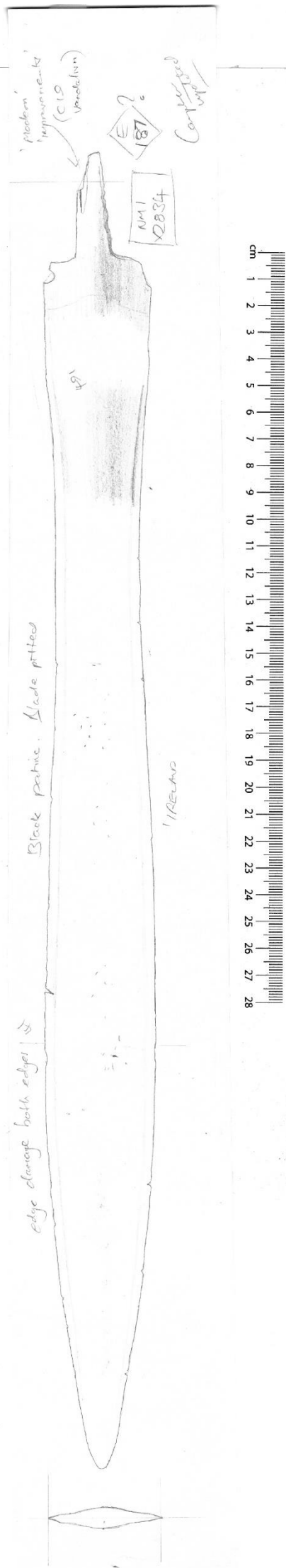
5 1/2
1/2

Polished dk brown
pale and aged
Reddish





187 (2)



Patchy black patina

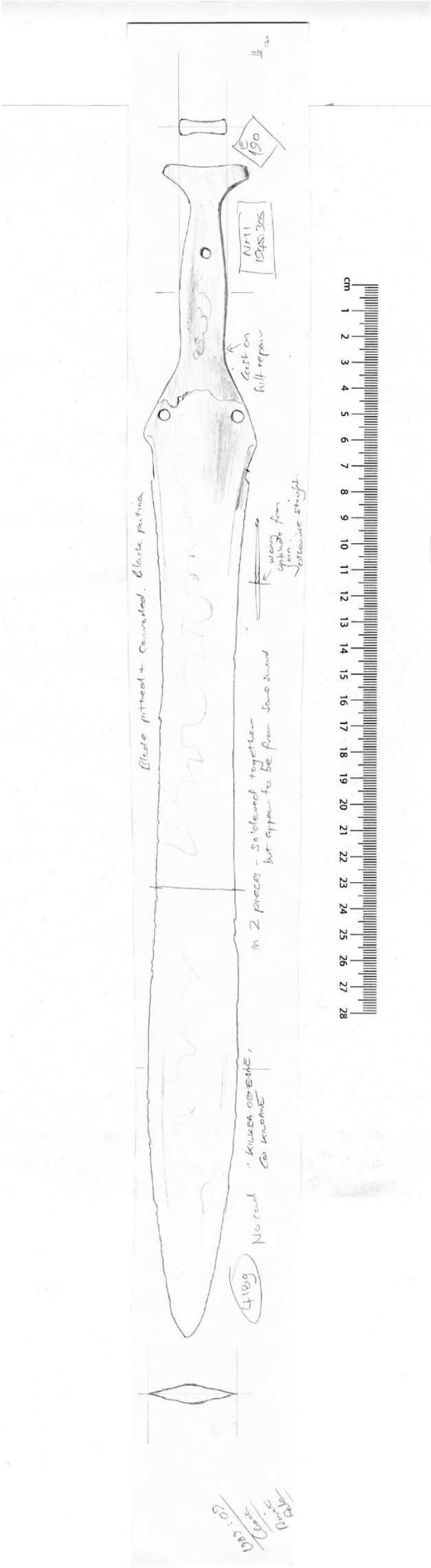
Sketch for
kit repair
Sketch of
river in situ

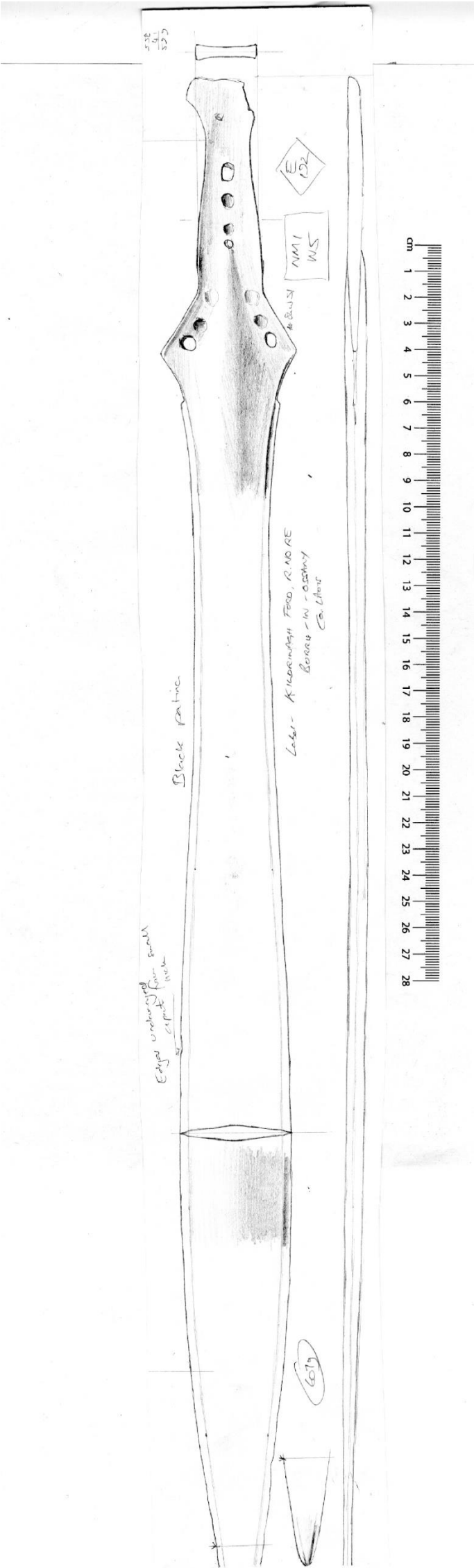
E - Dredged from R. Barrow, Greenland, Co. Kildare
Cast in situ - Found in June 1928 in Barrow Dredge Box
noted dredged from river bed (Kilpatrick)

189
1928: 655
1911

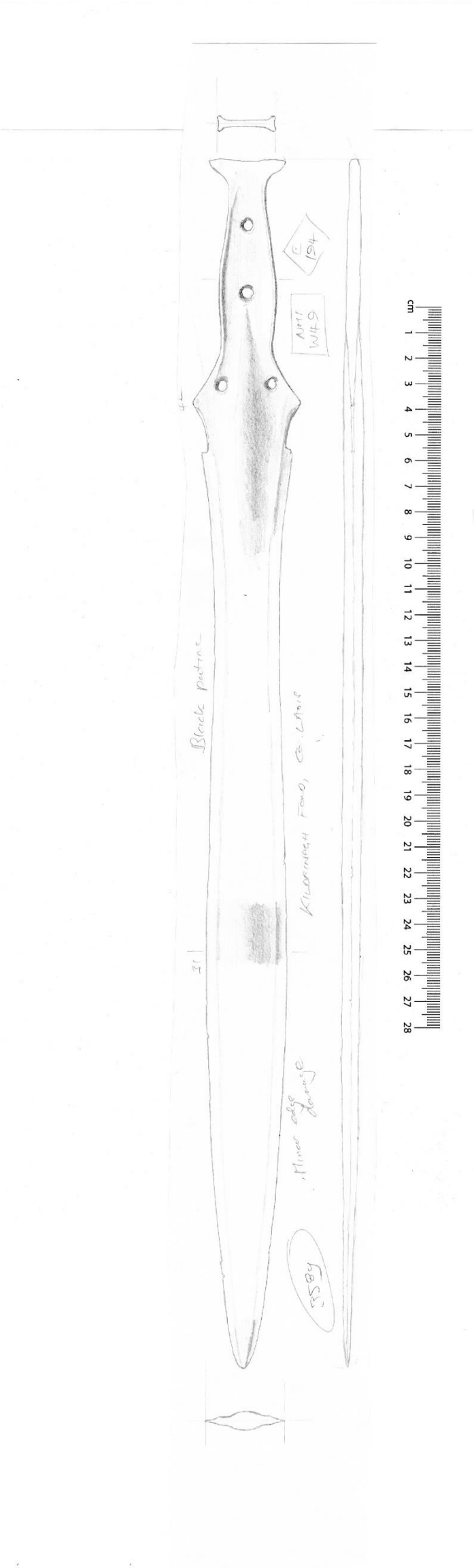
Completed
26/1/09

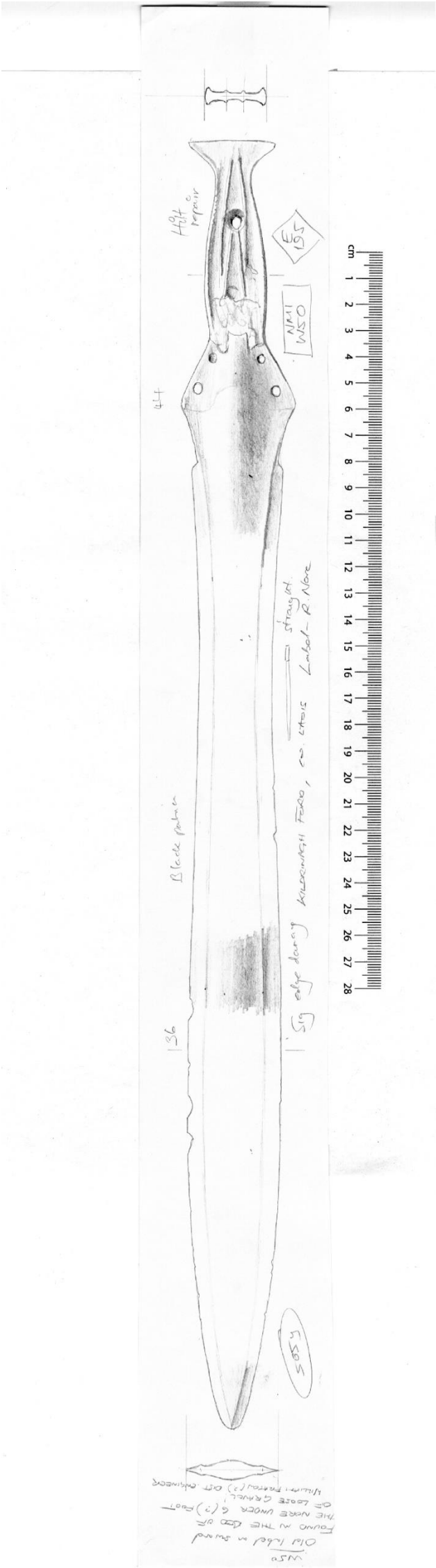


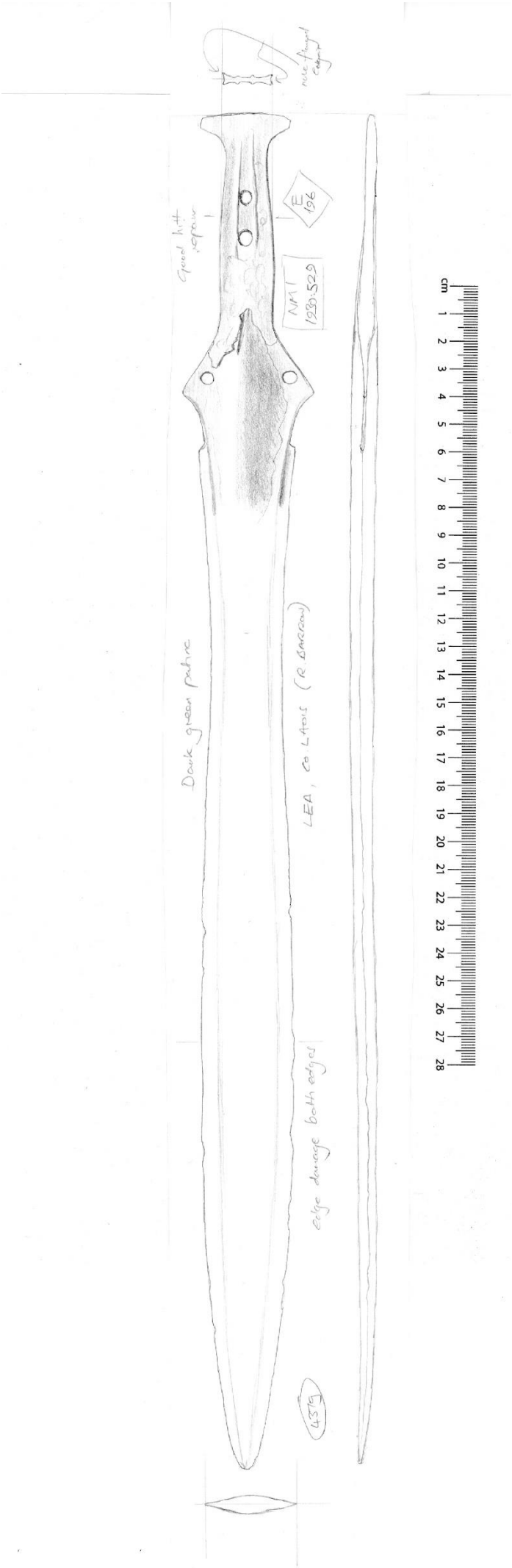


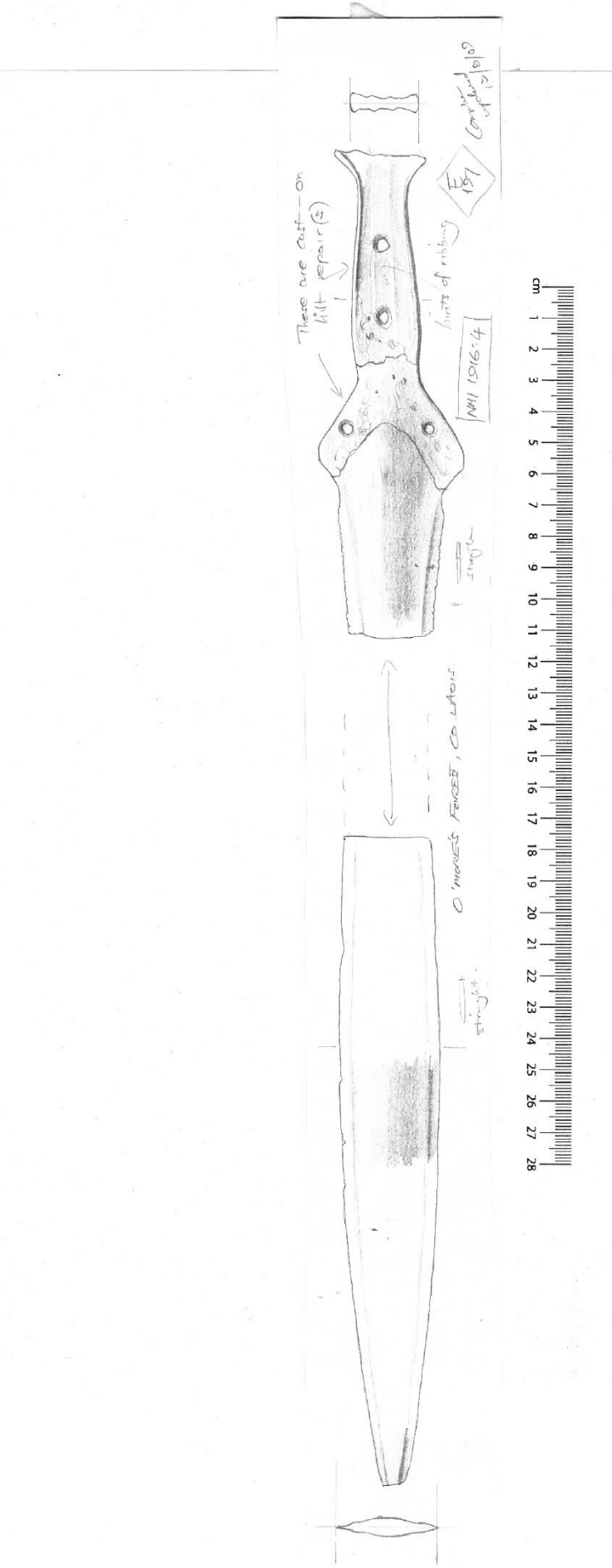


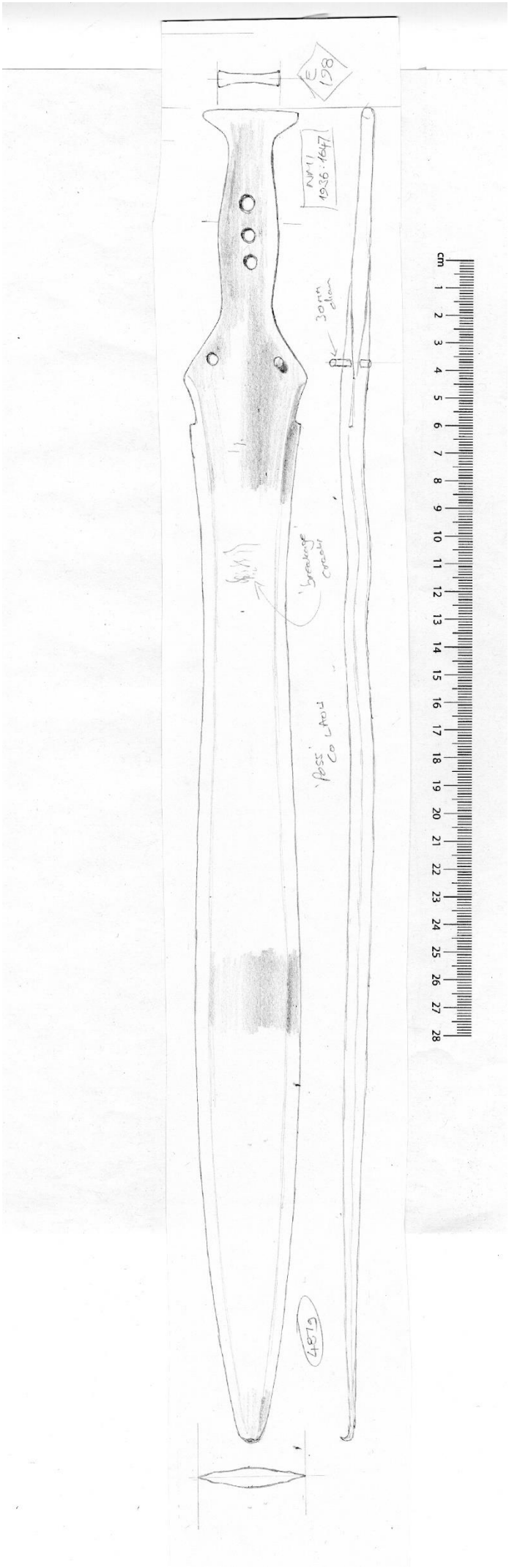


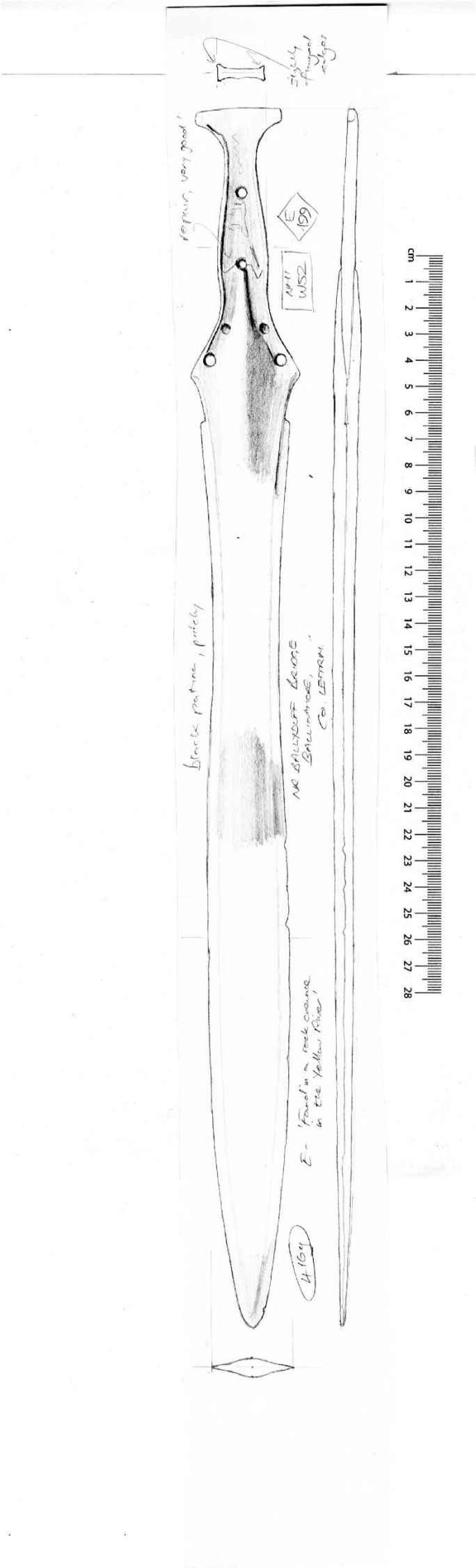


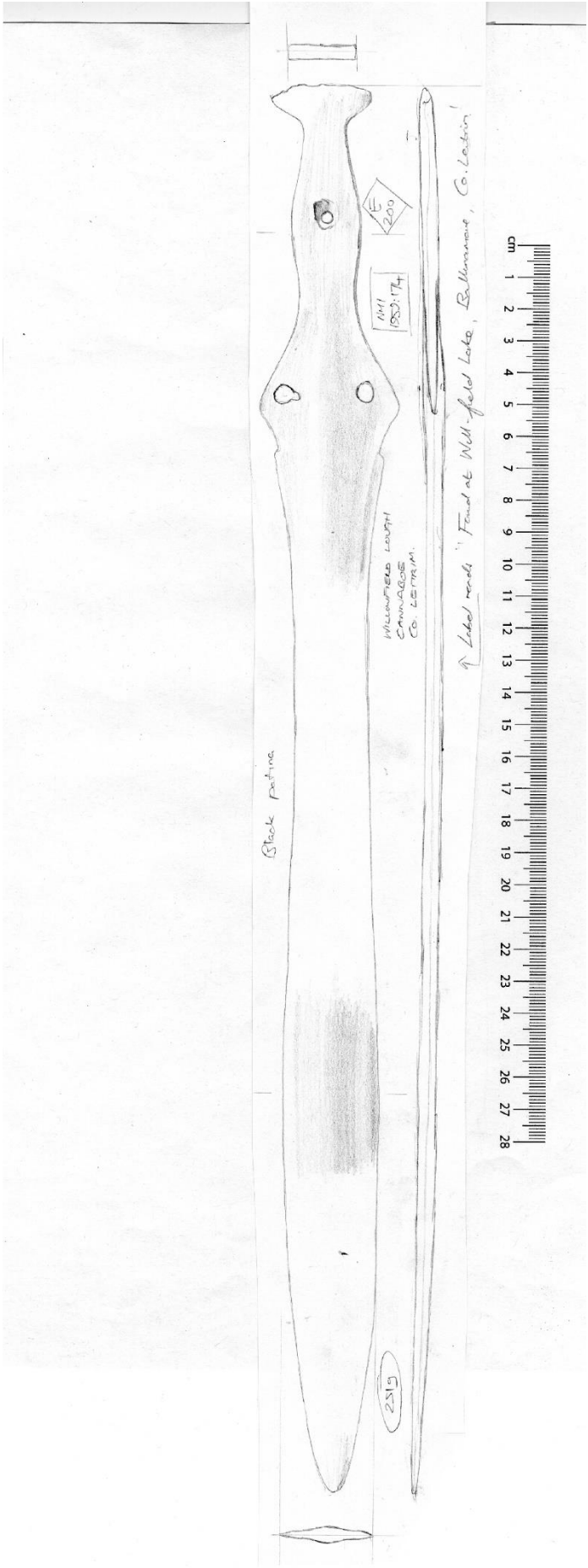




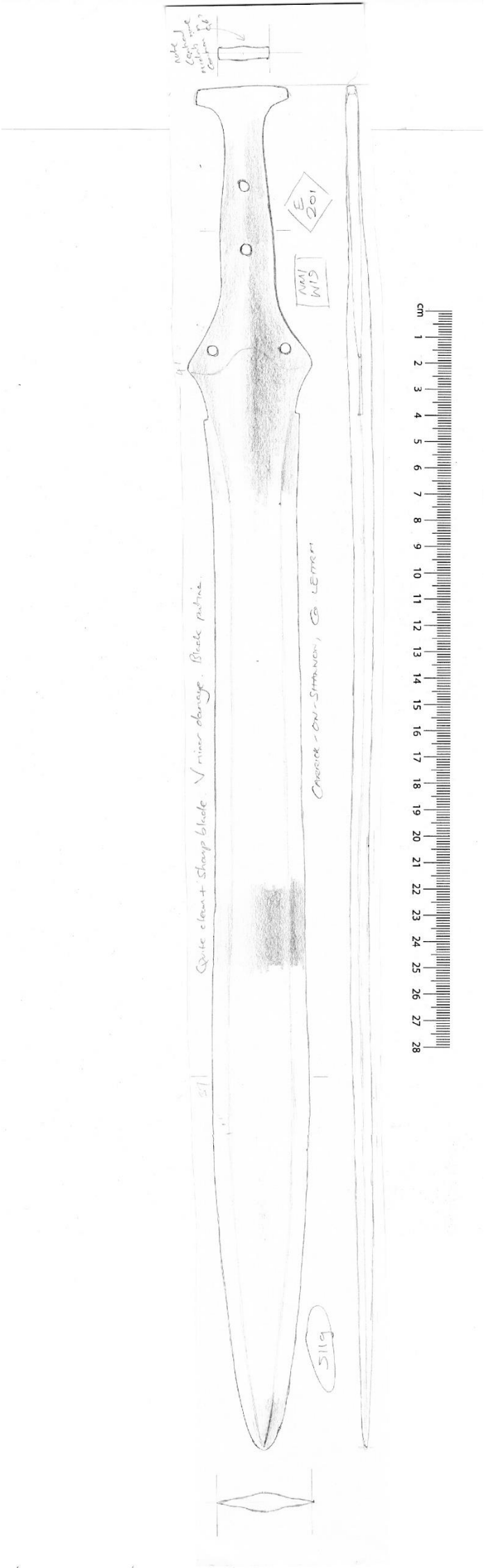


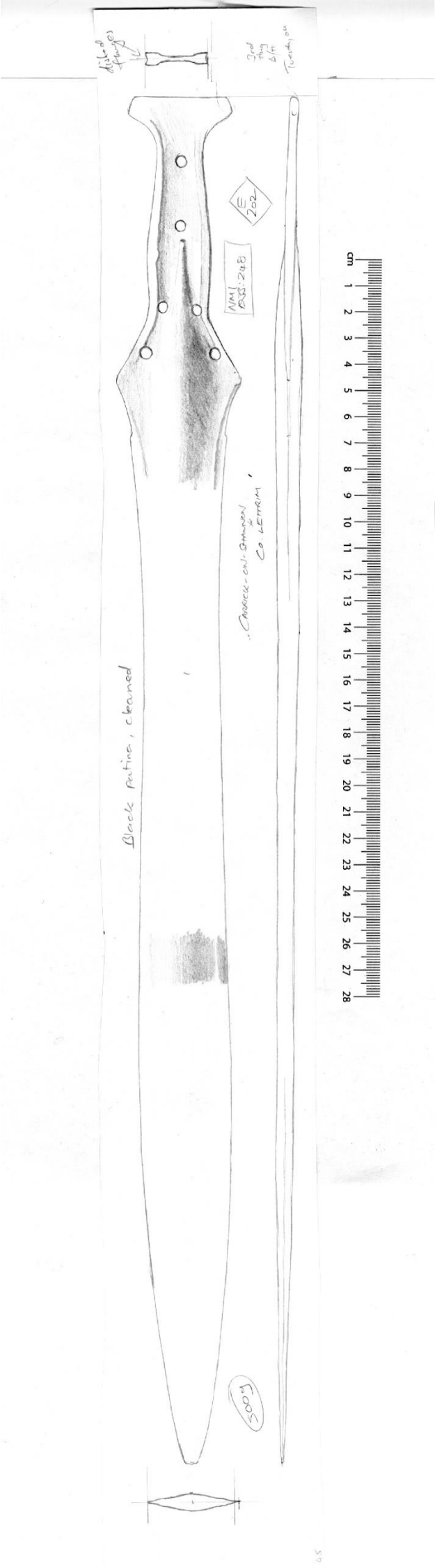


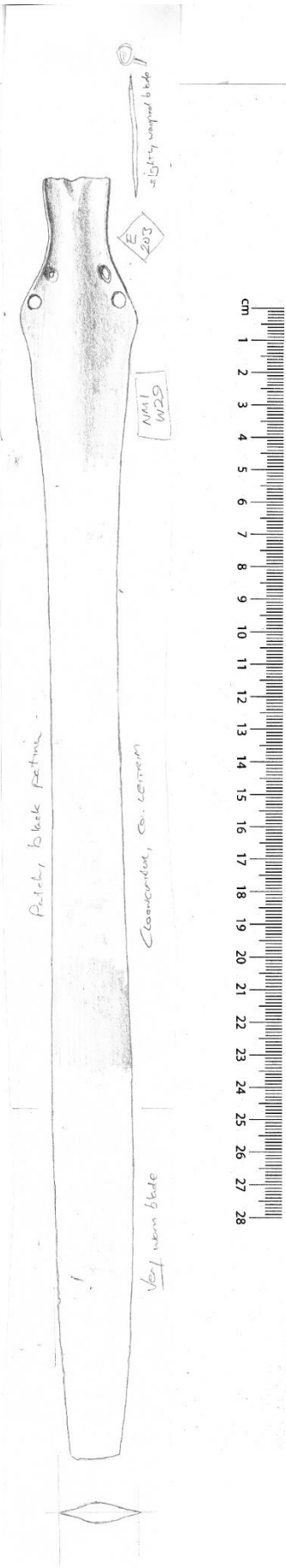


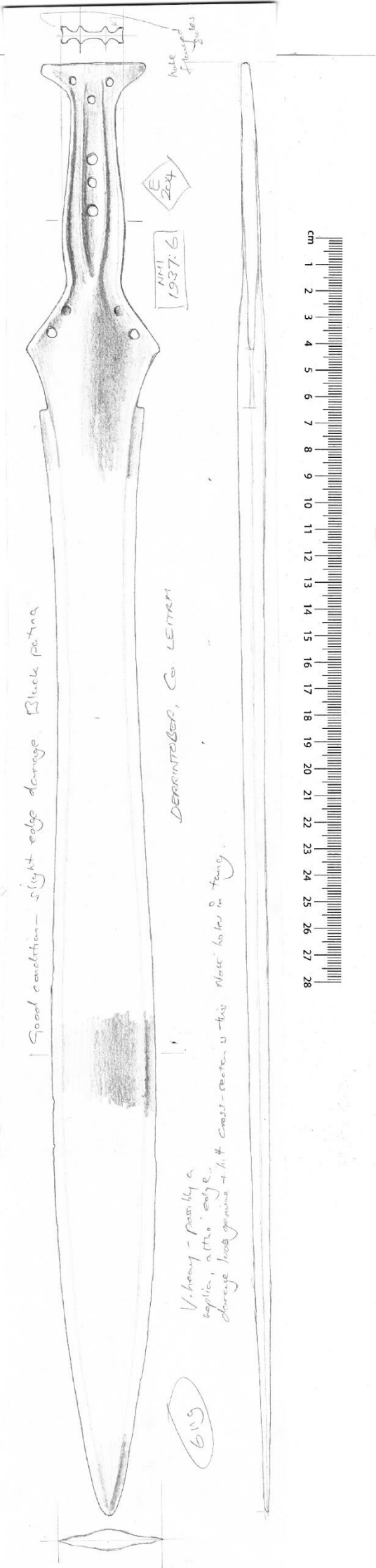


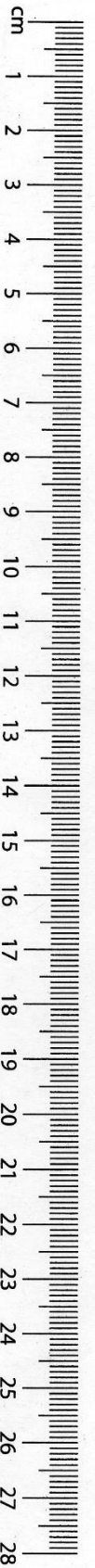
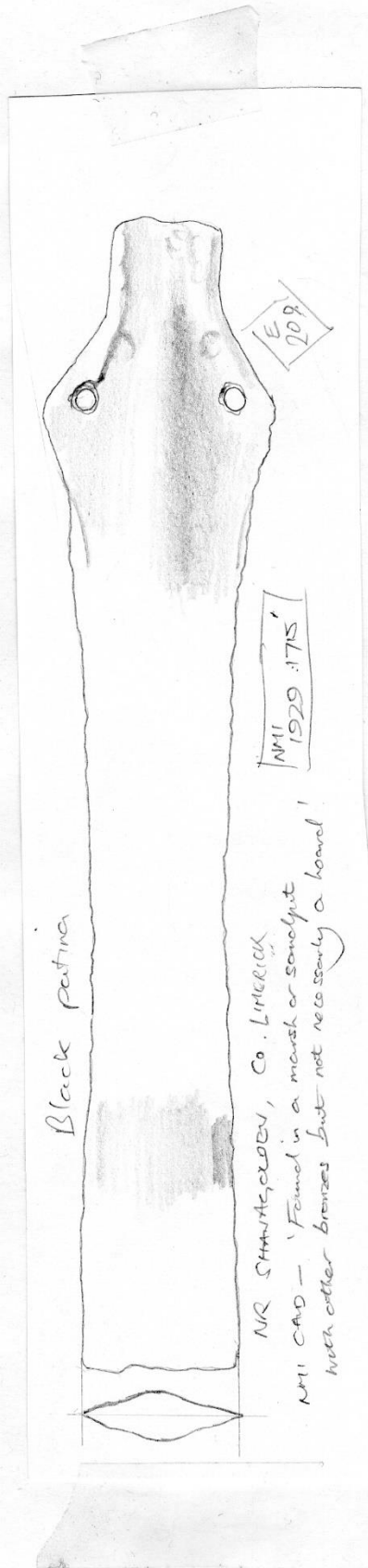
201



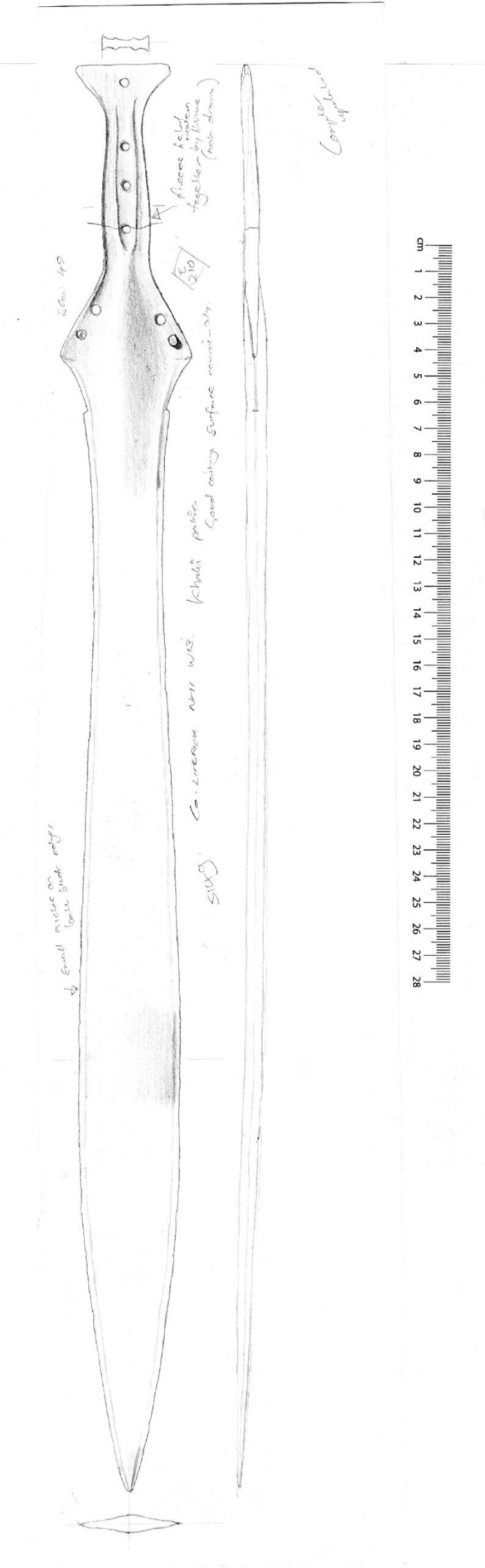


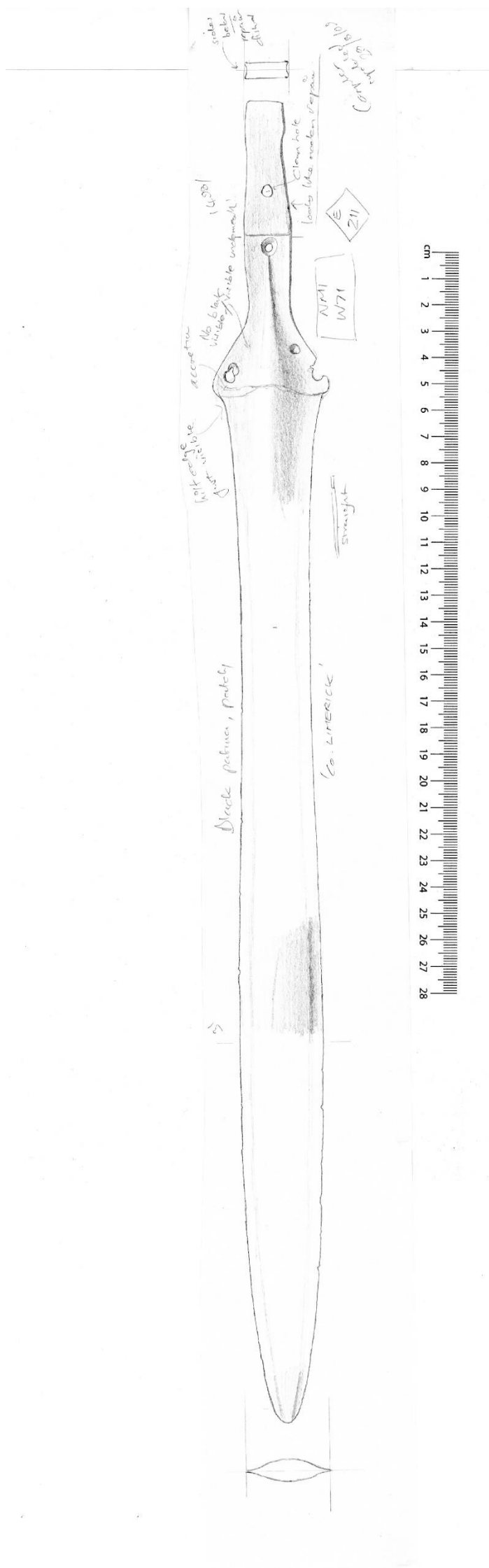


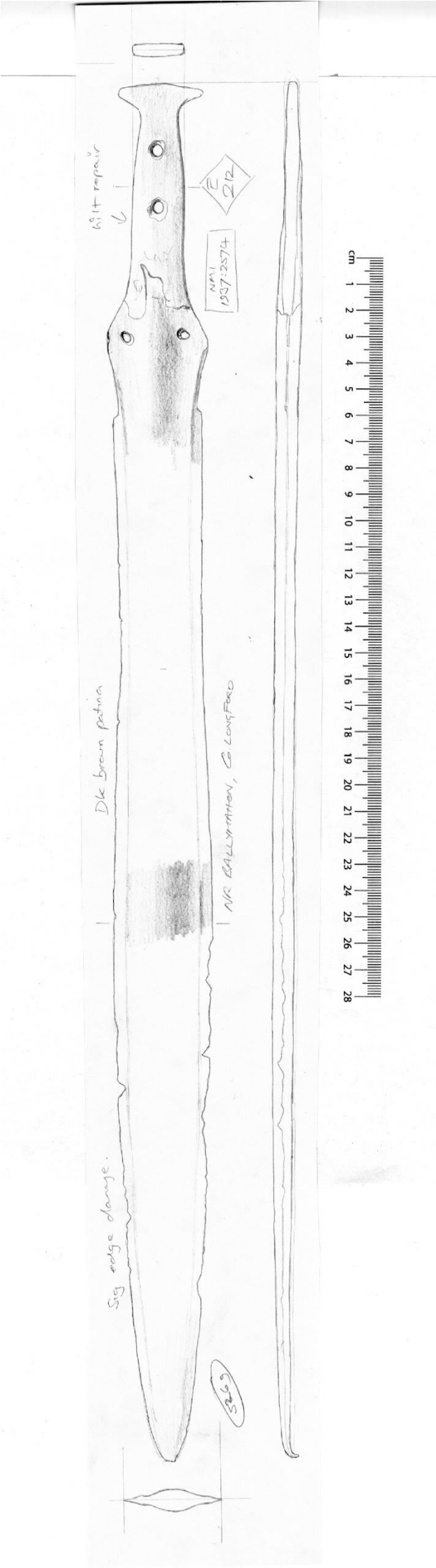


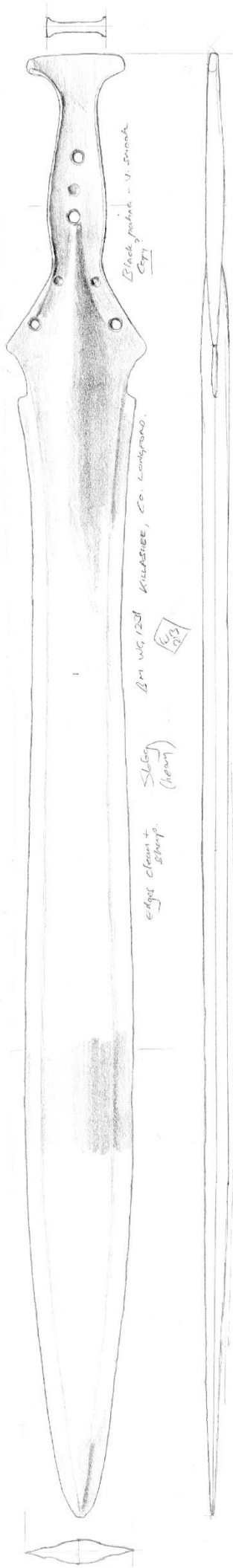


210

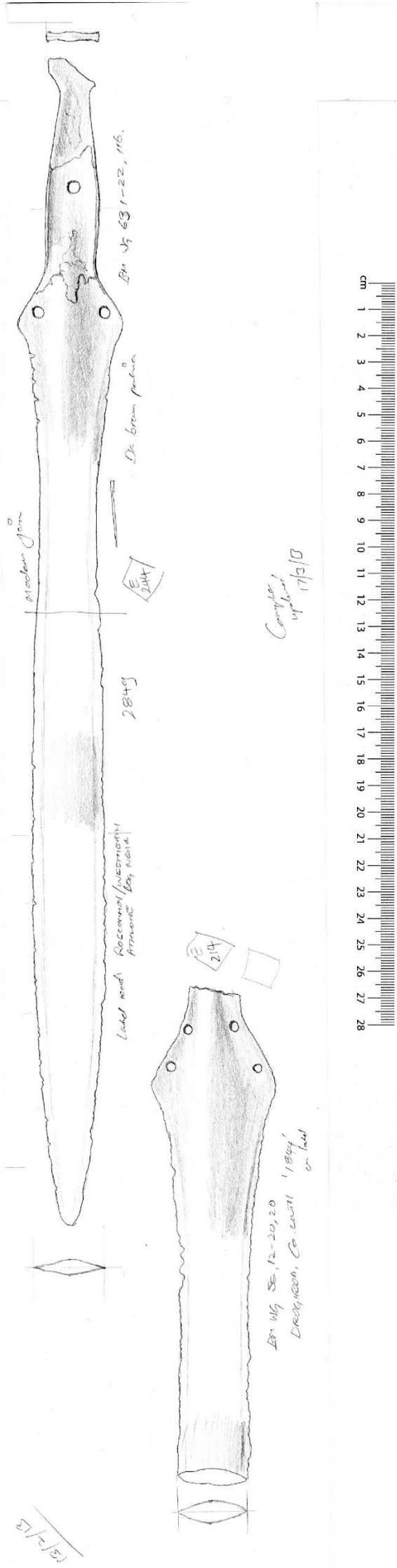


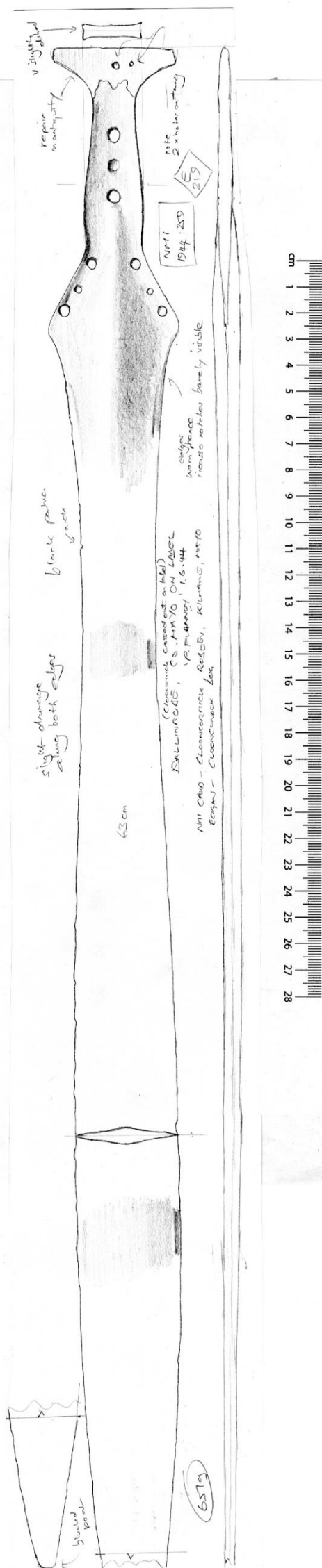


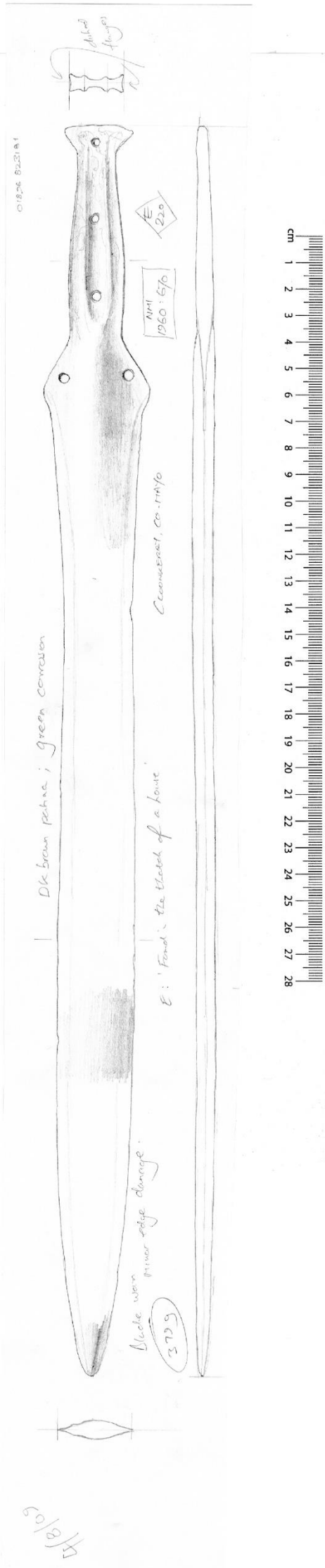


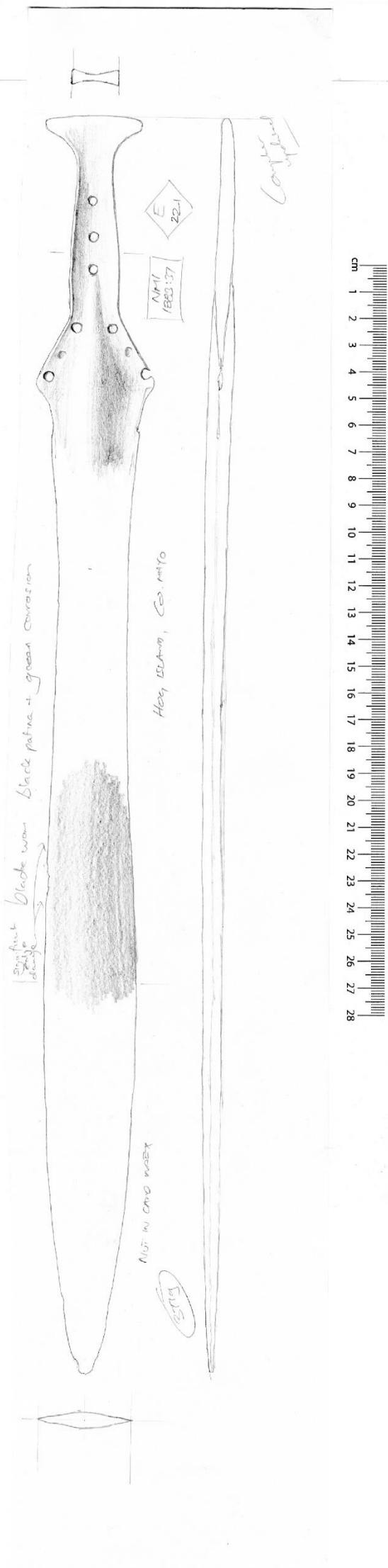


214 and 244

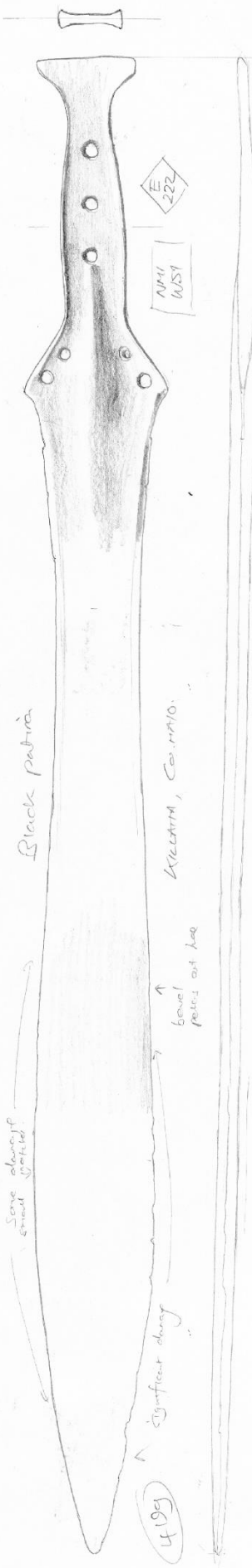


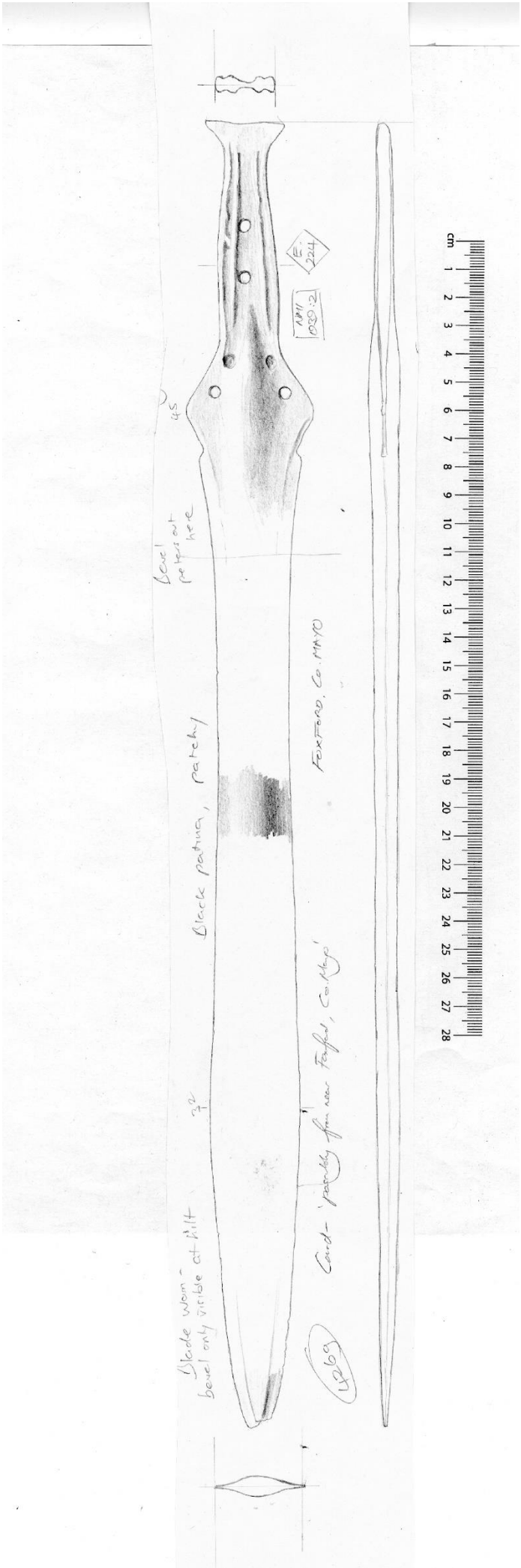


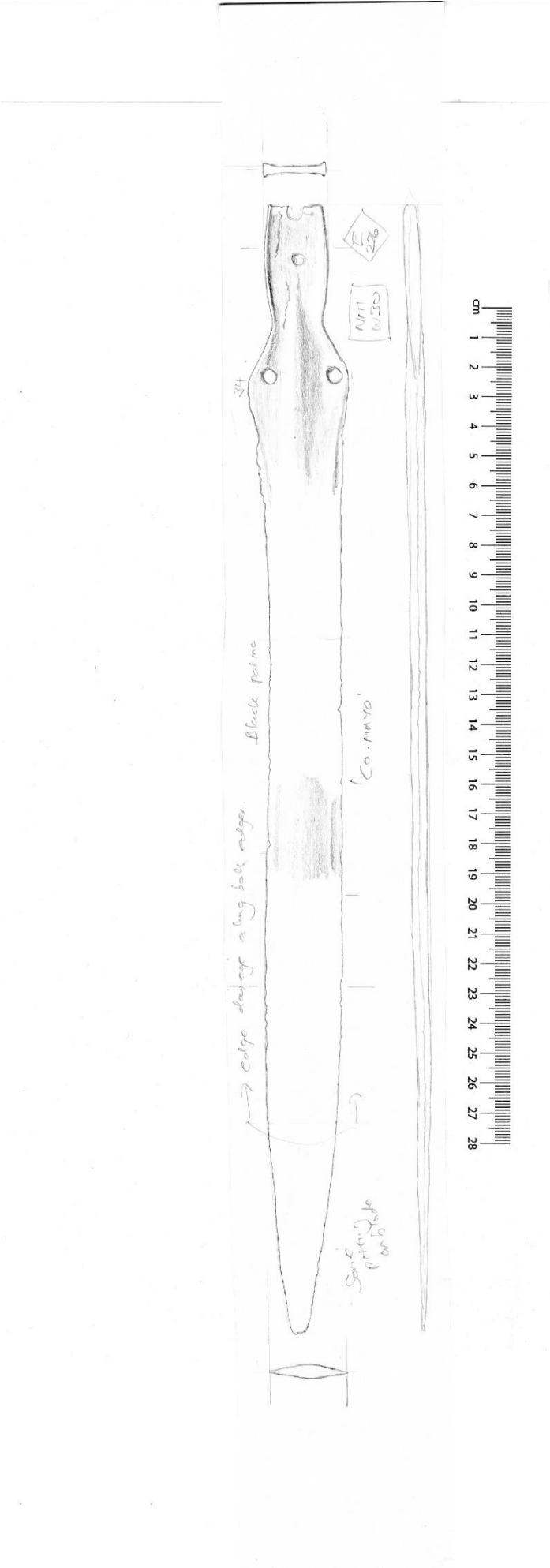




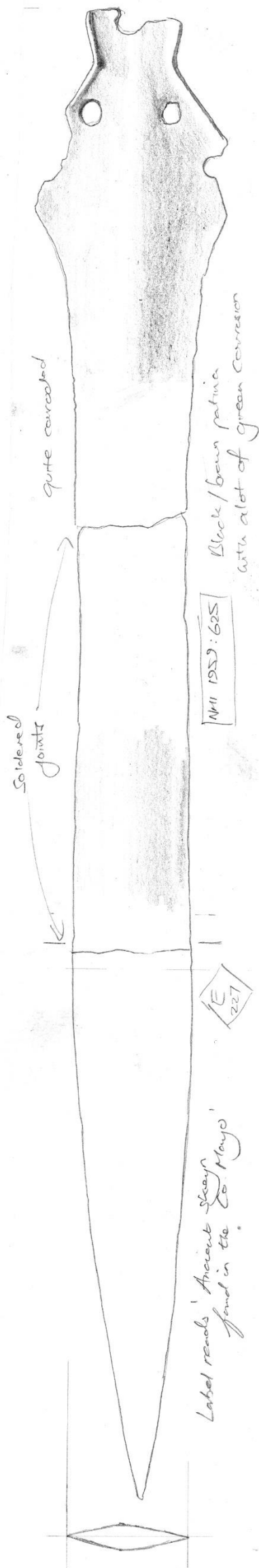
222





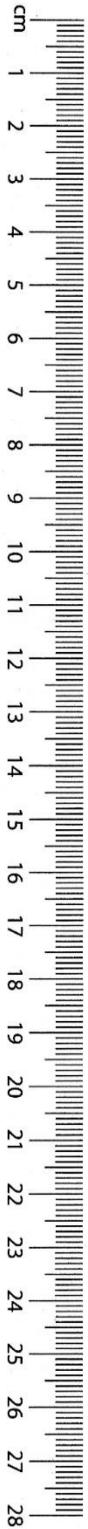
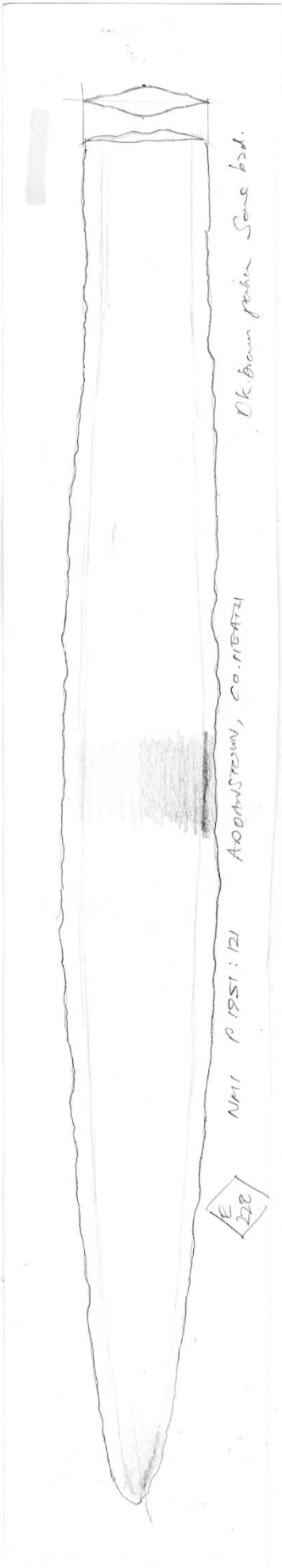


227

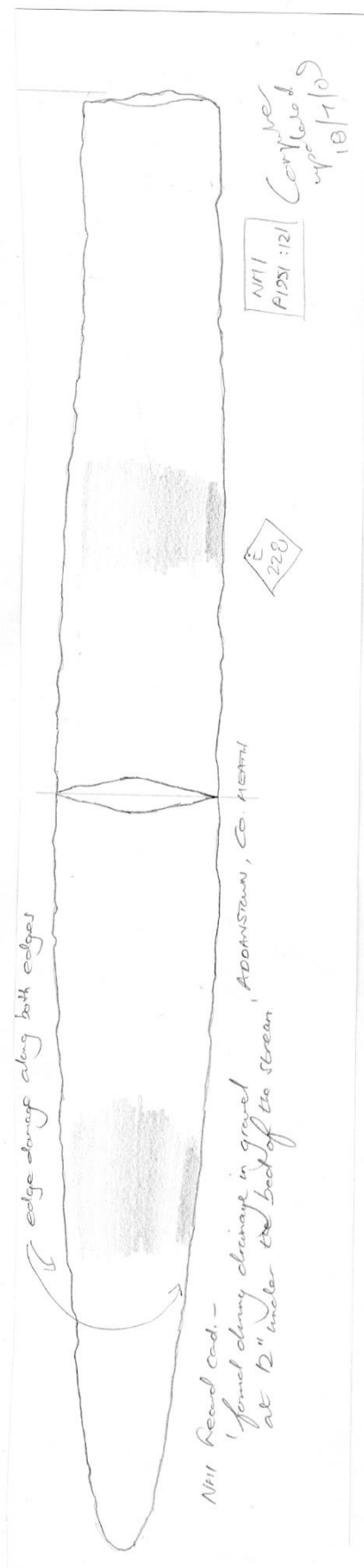


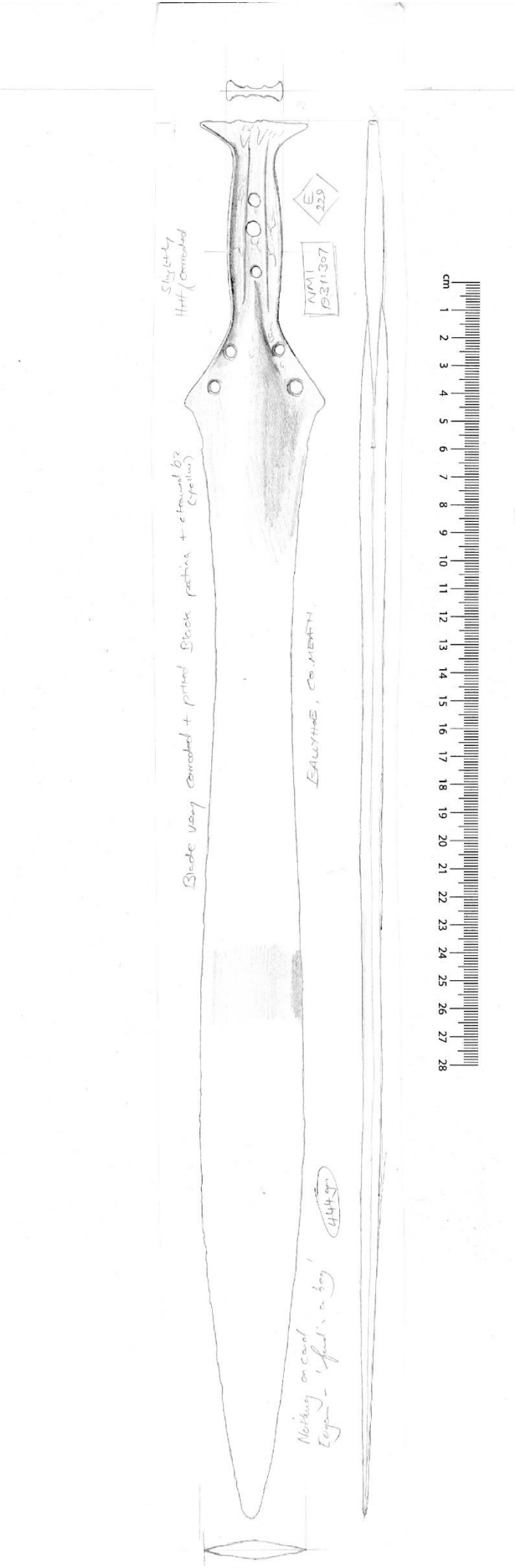
1/81
Copper
upheld.

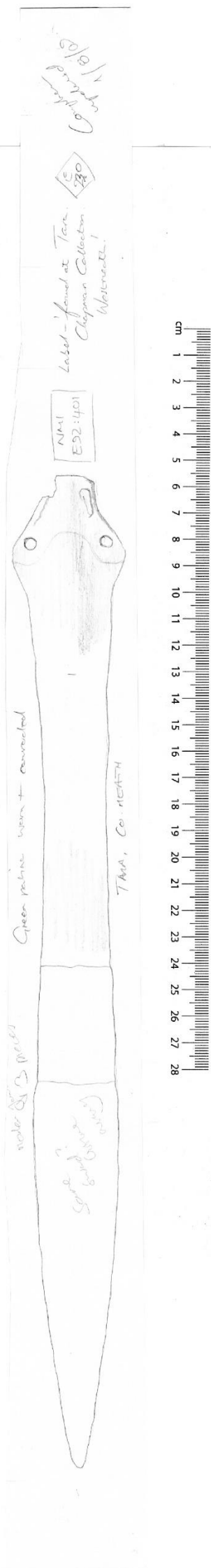




228 (2)







230 (2)

3 pieces - random join

NH EGZ: 401

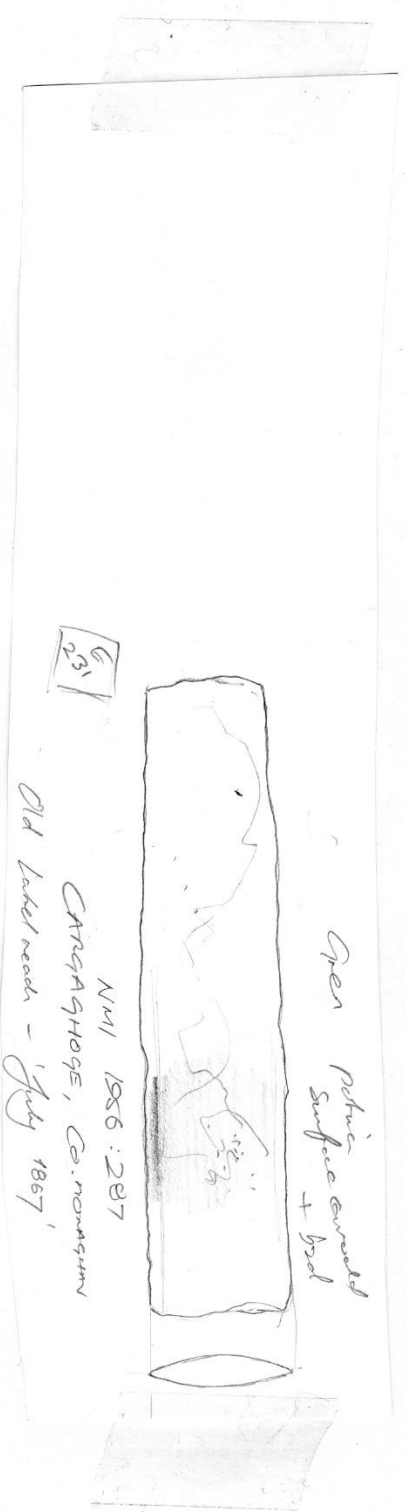
Found at Tana
Cheyenne Collection, Whitecourt.

Corrected edges
Killed on edges
Smooth surface on blade

230

Green
patina

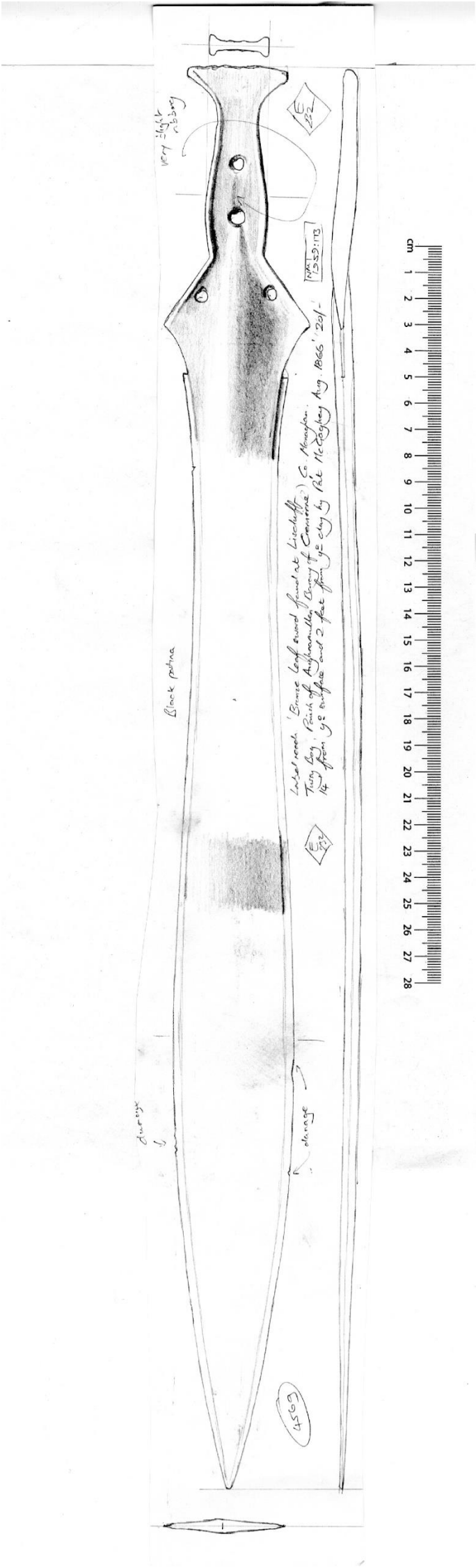




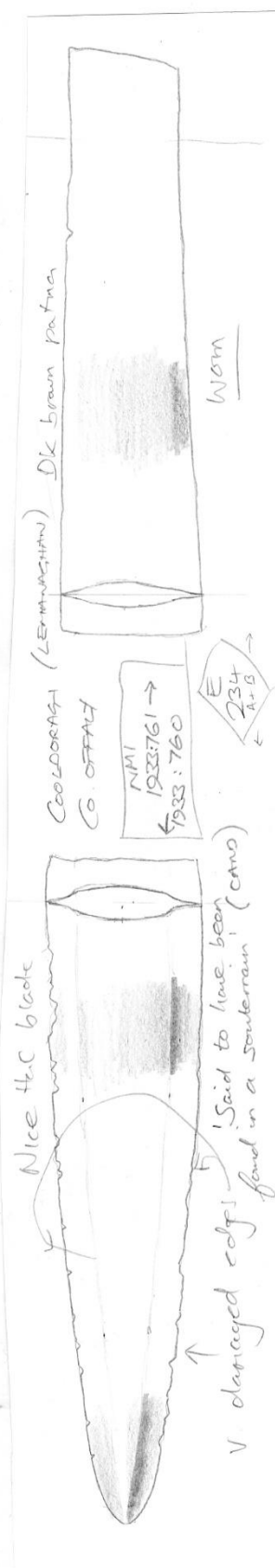
Open
Pebble
Surface covered
+ bed

6.31

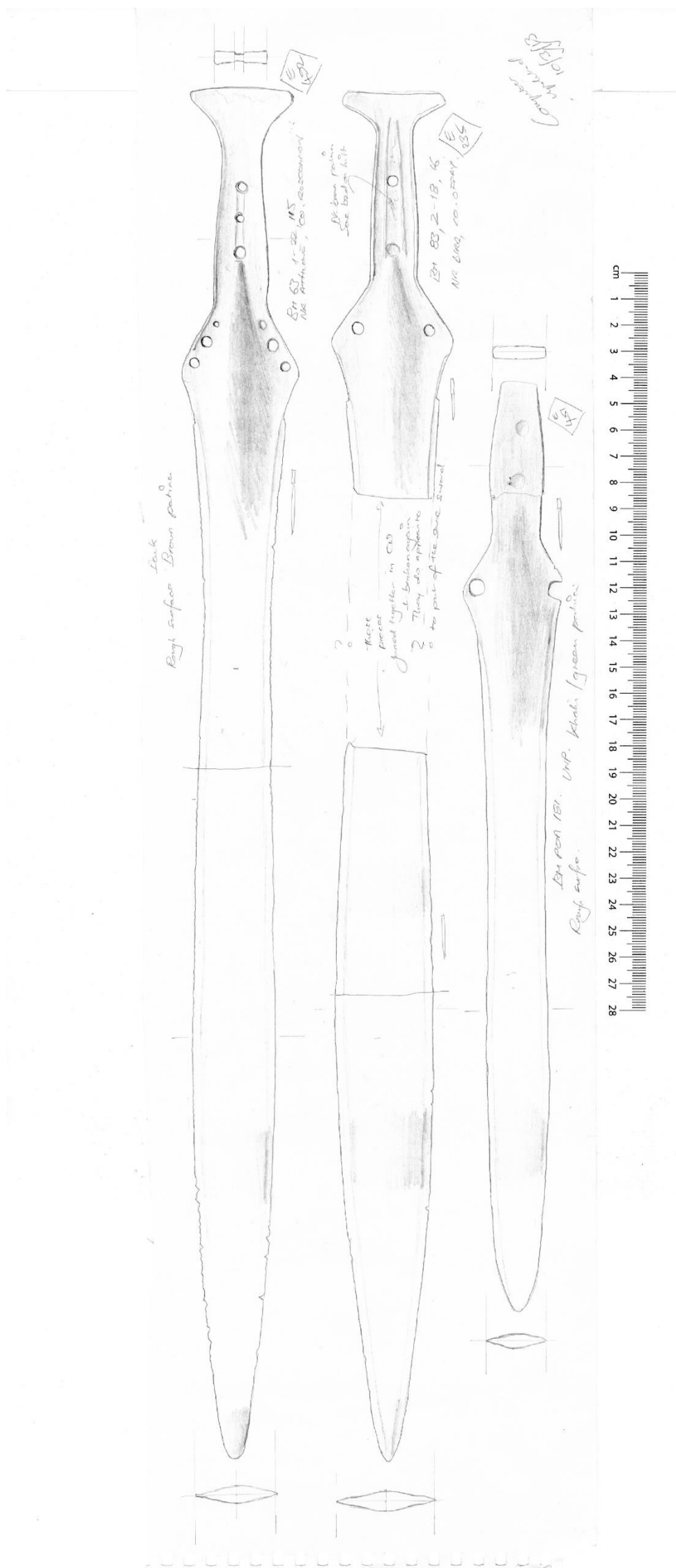
NW 1 1886 : 287
CAMPAGNAGE, Co. NORMAN
Old label reads - 'July 1867'



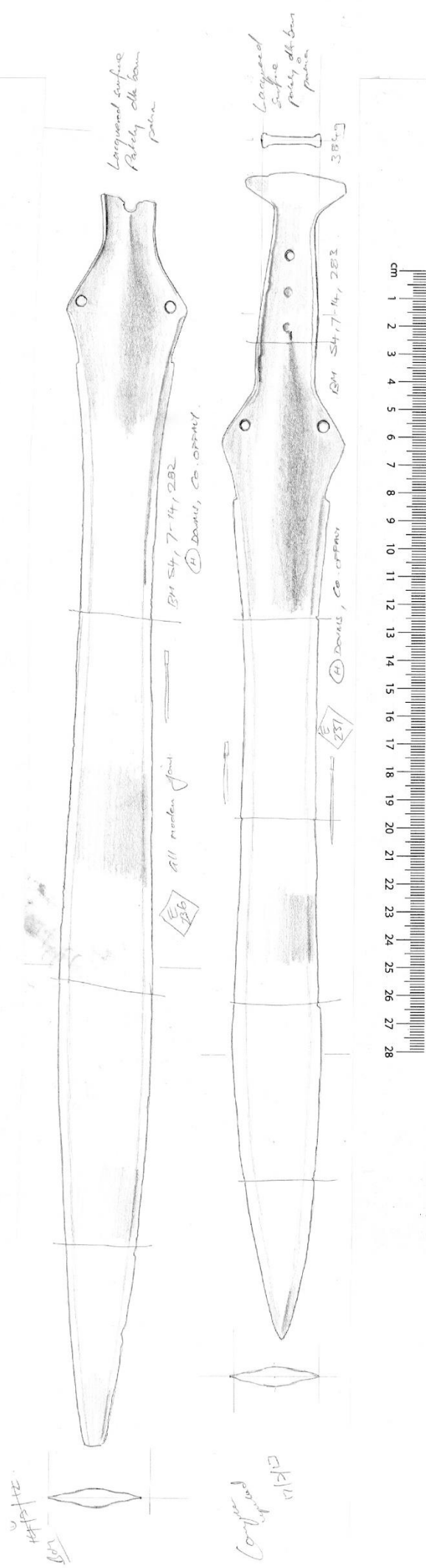
234



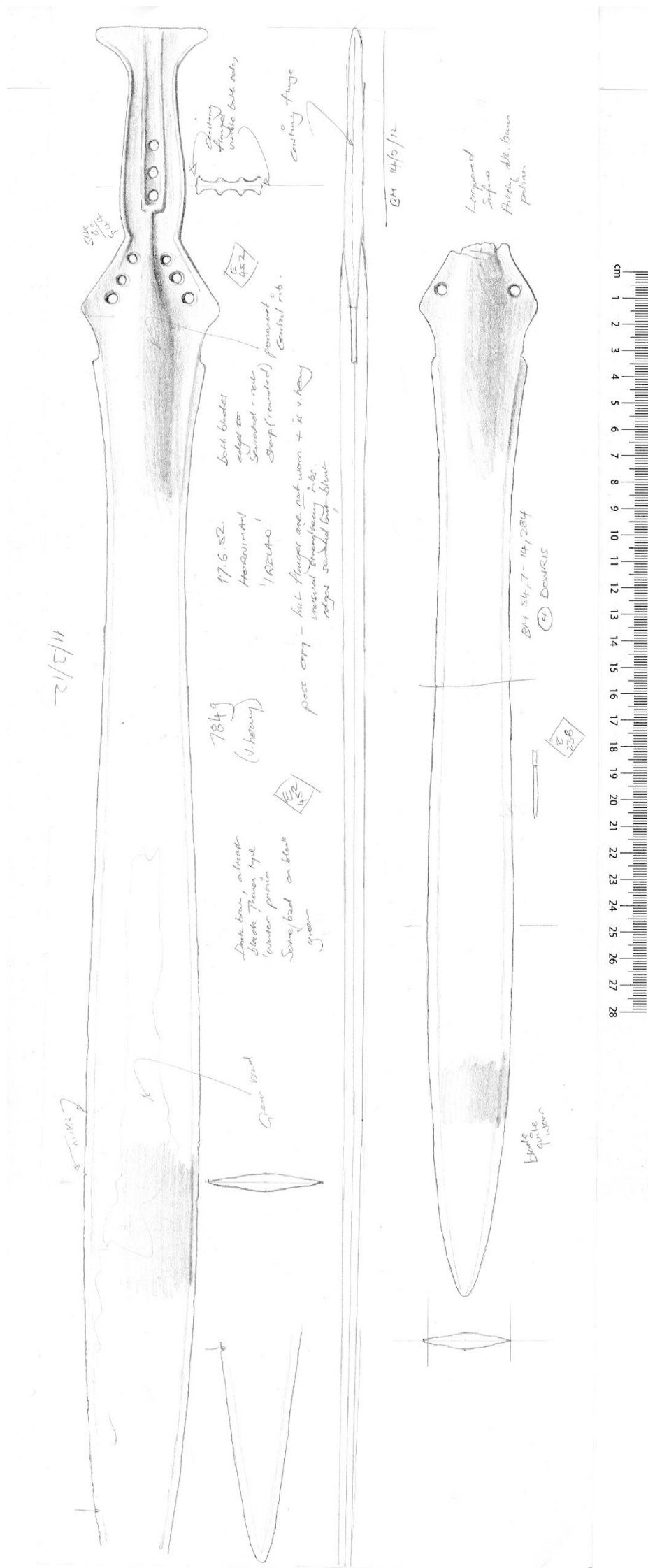
235
451
492



236
237



238,
452



239

Patchy black paint

E

4 Downis,
Co. Offaly

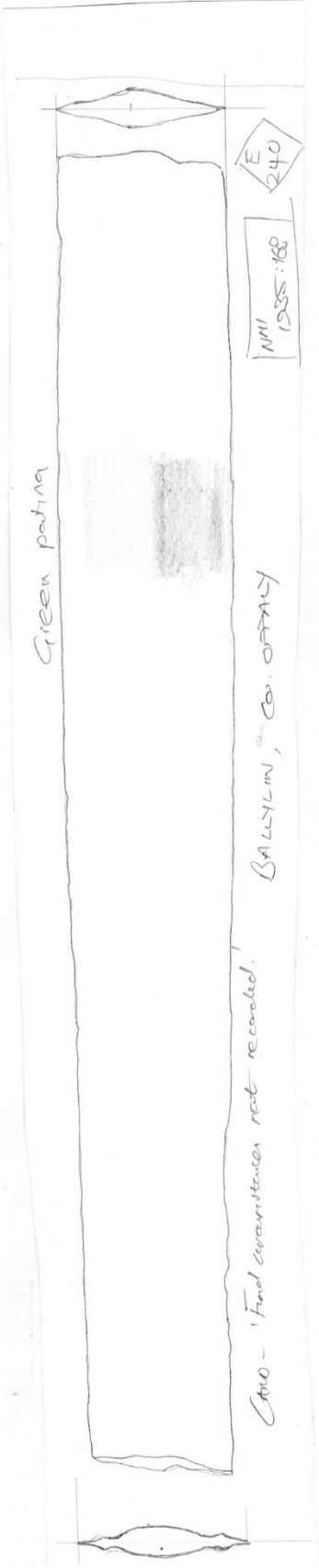
BM 54, 7-14, 286.



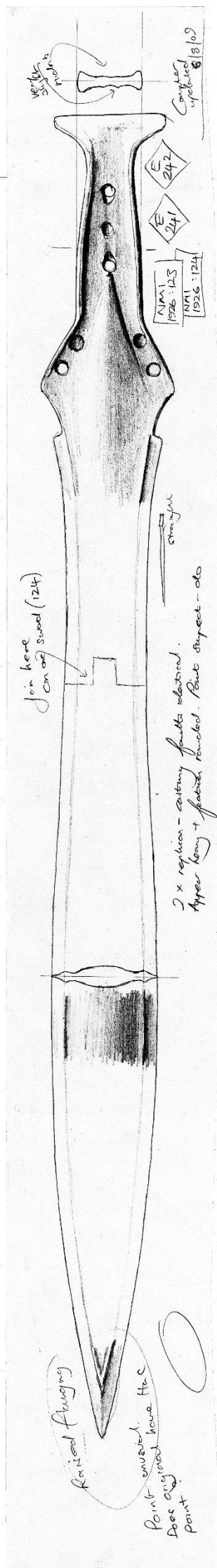
239
E



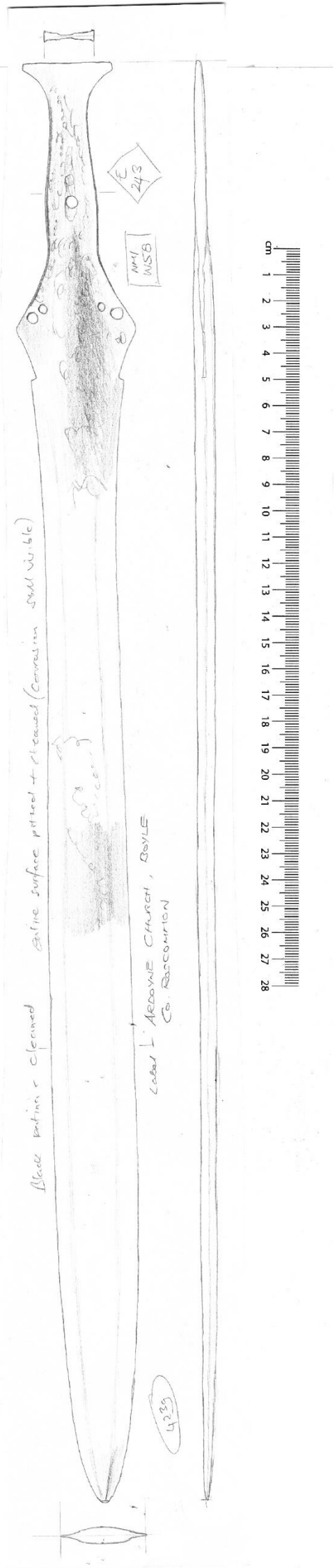
240

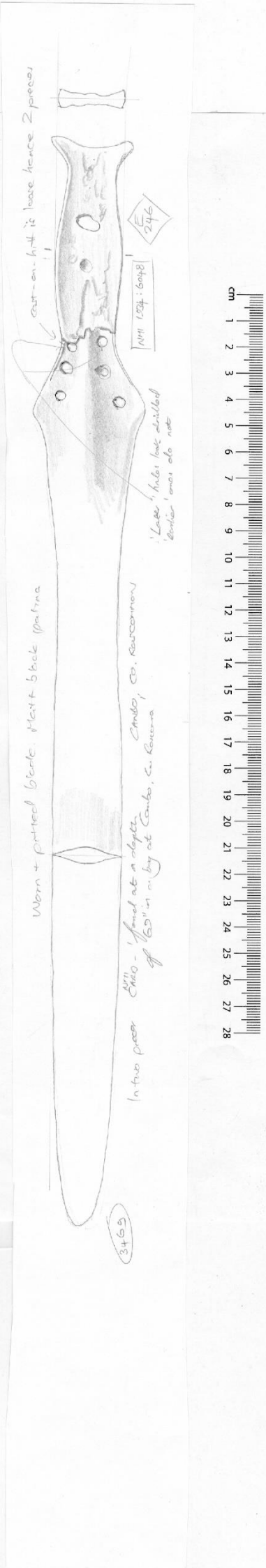


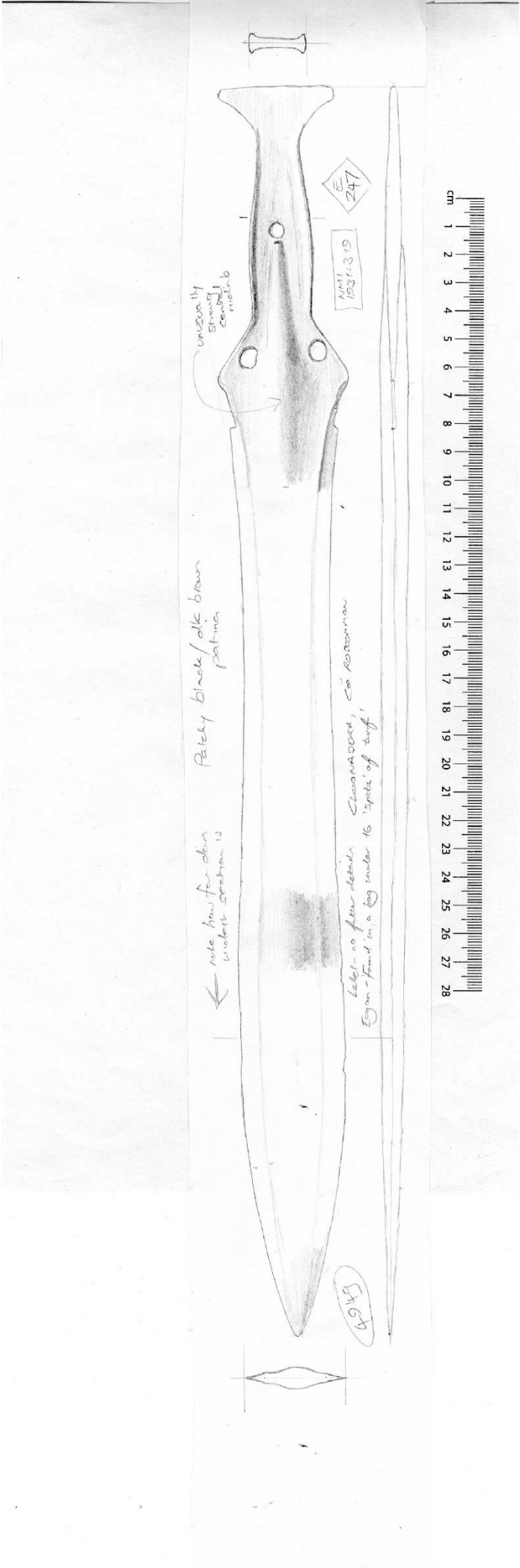
241
242

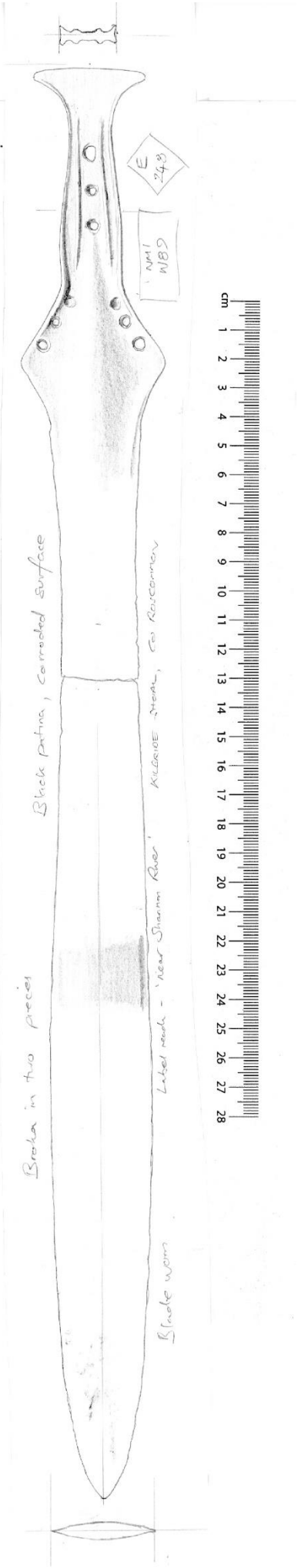


243

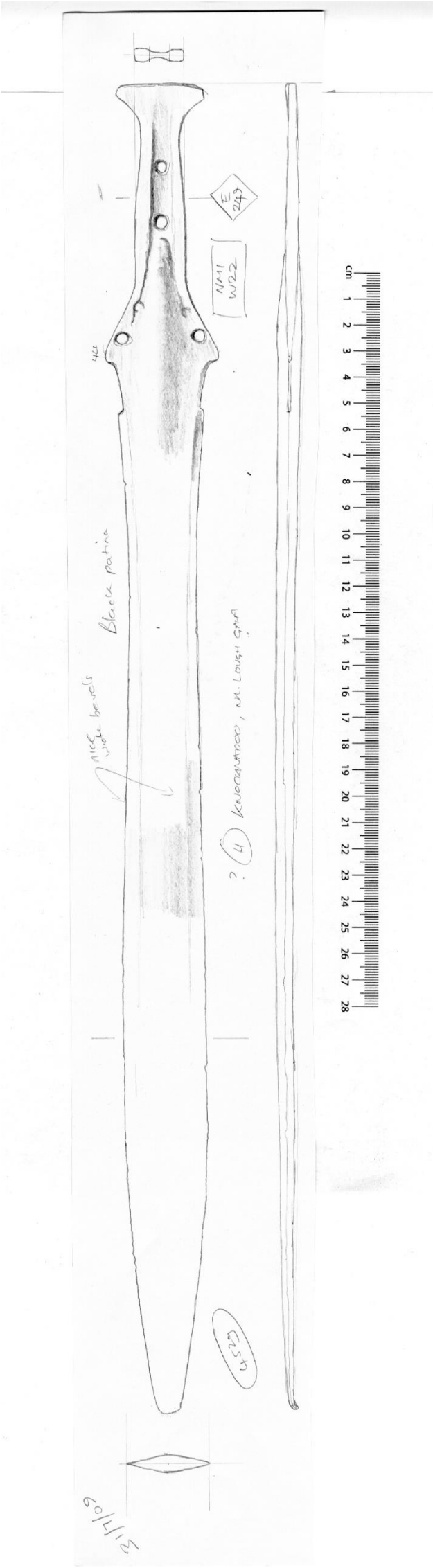




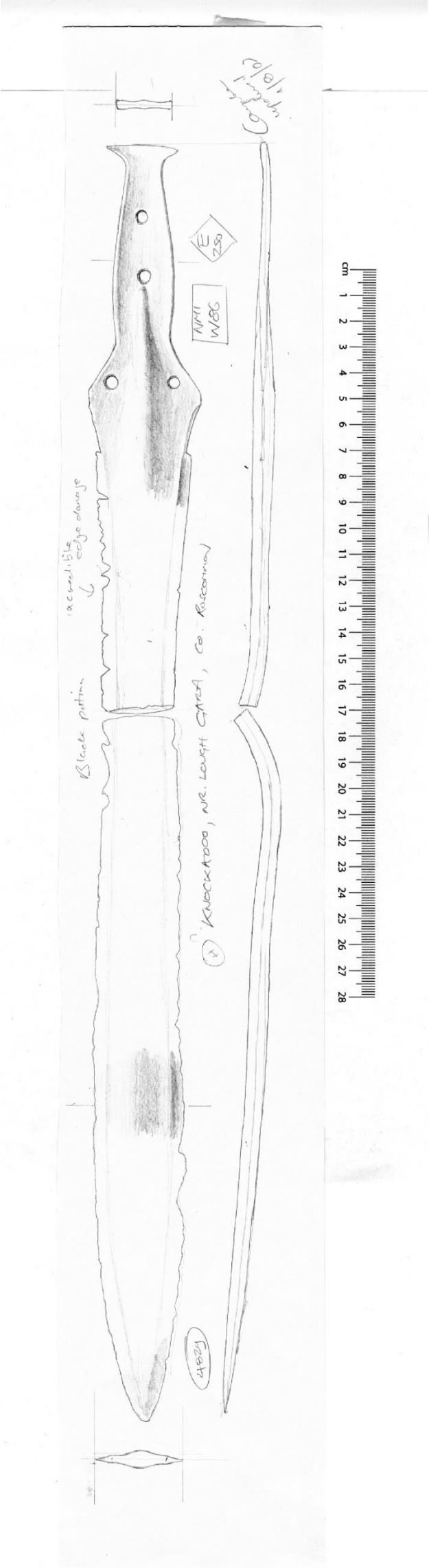


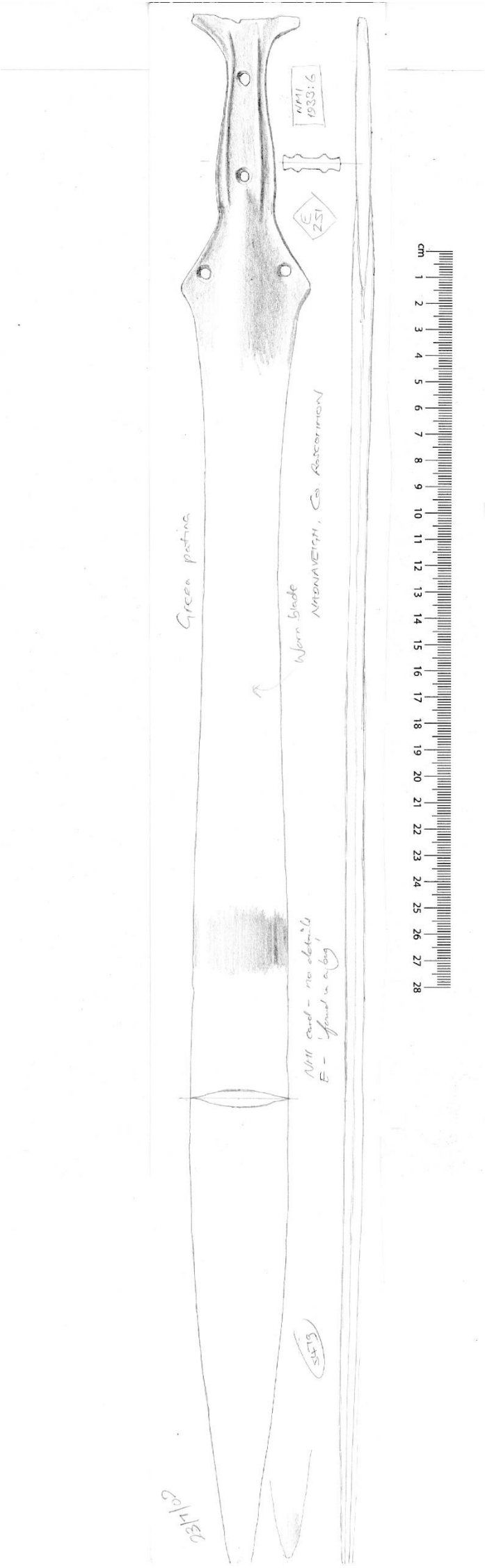


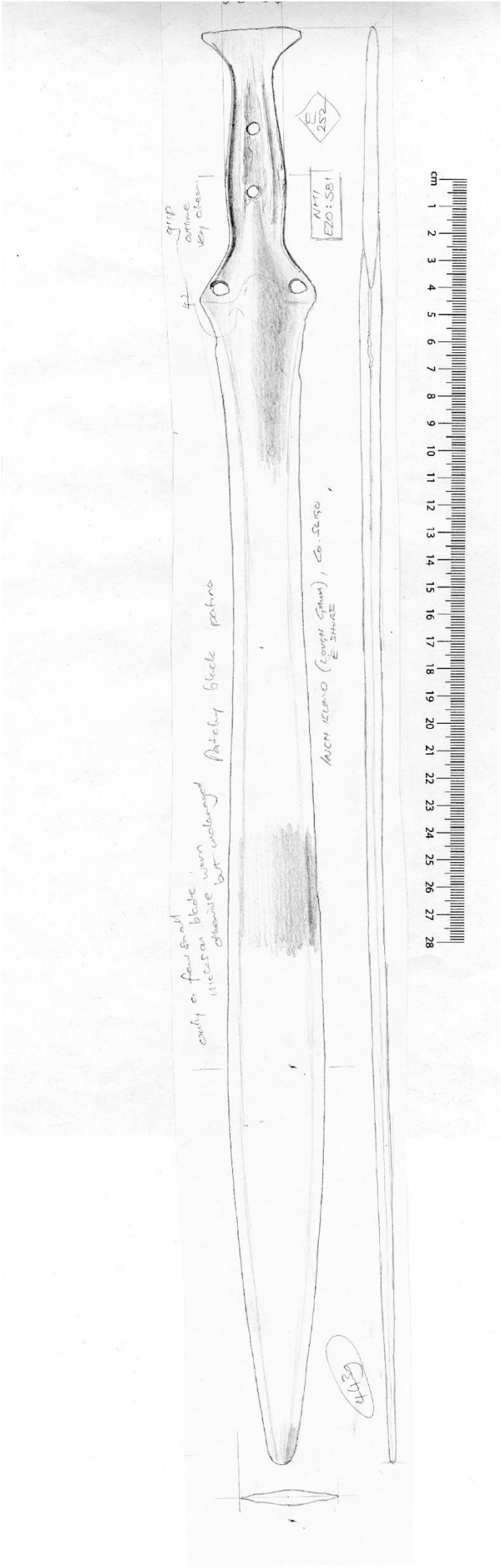
249



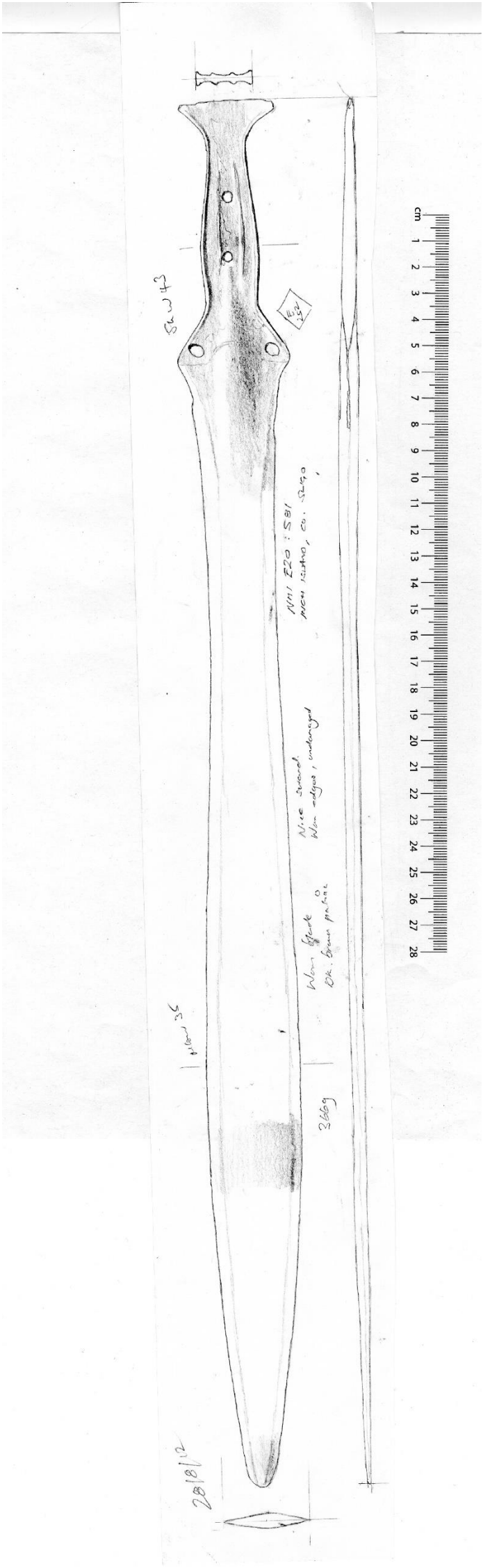
250

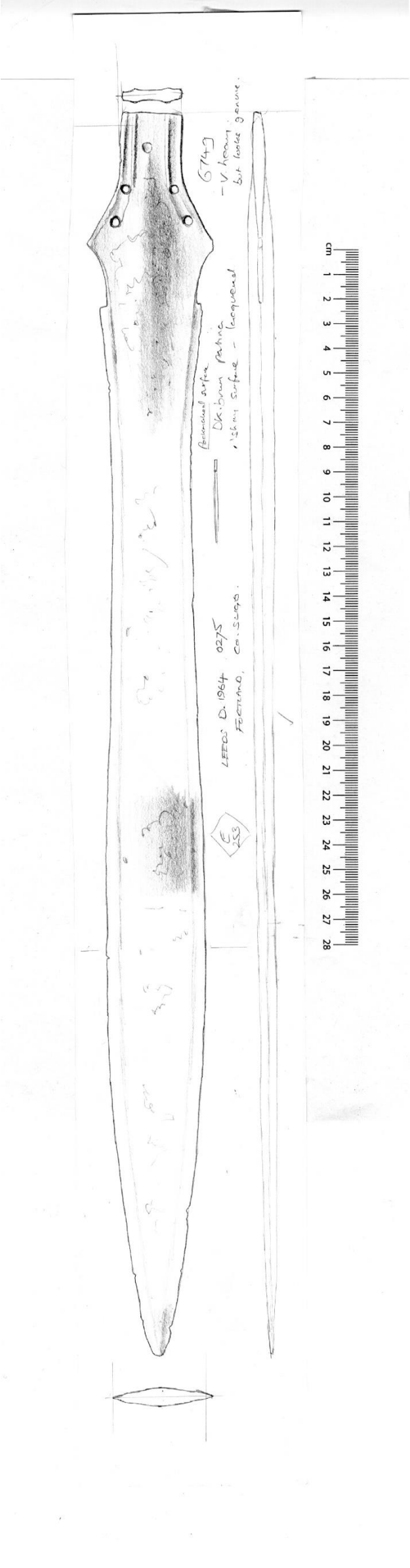




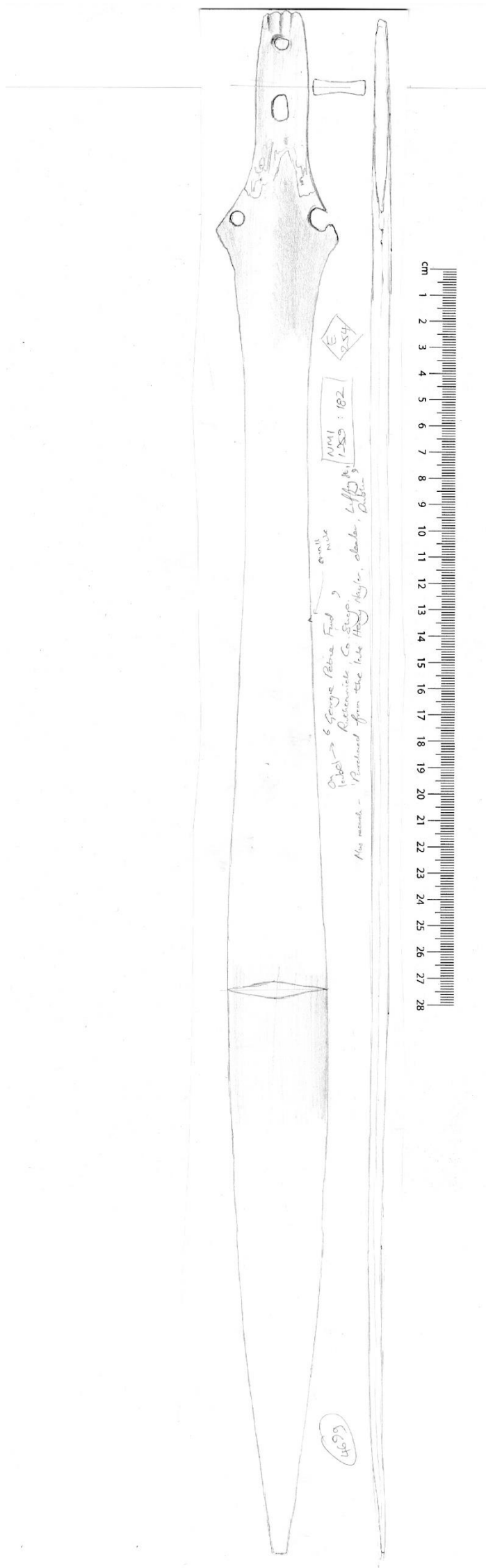


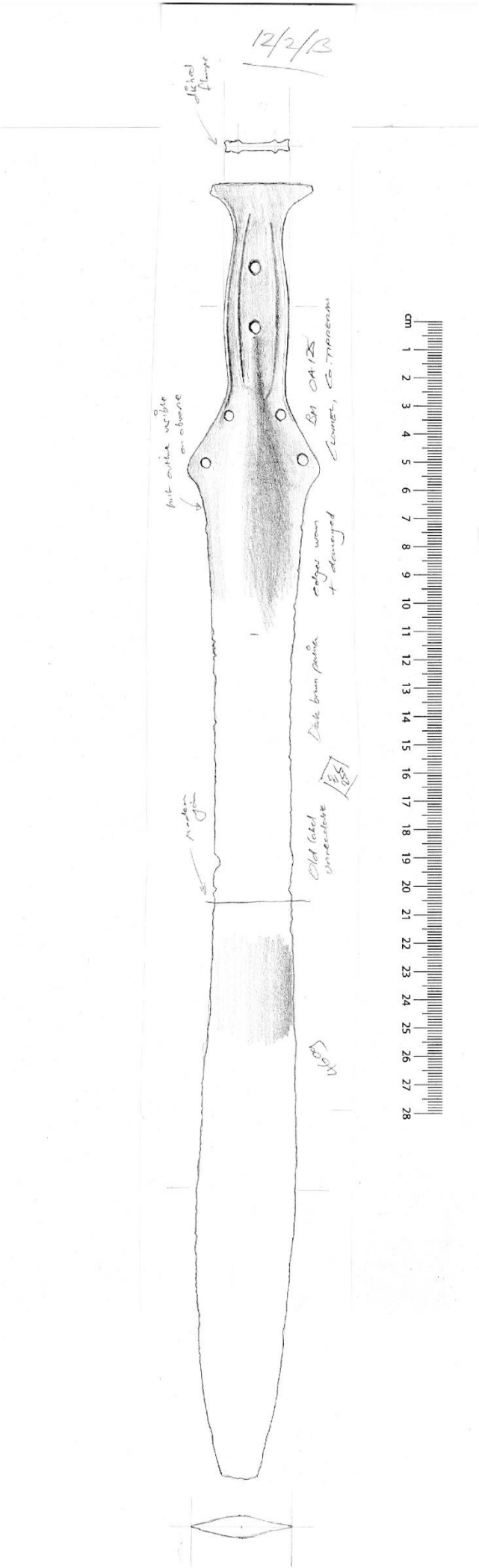
252 (2)



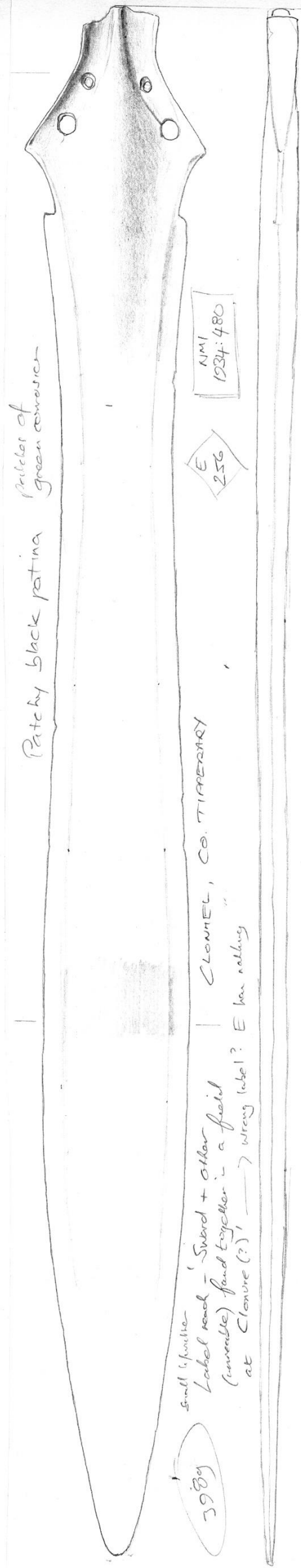


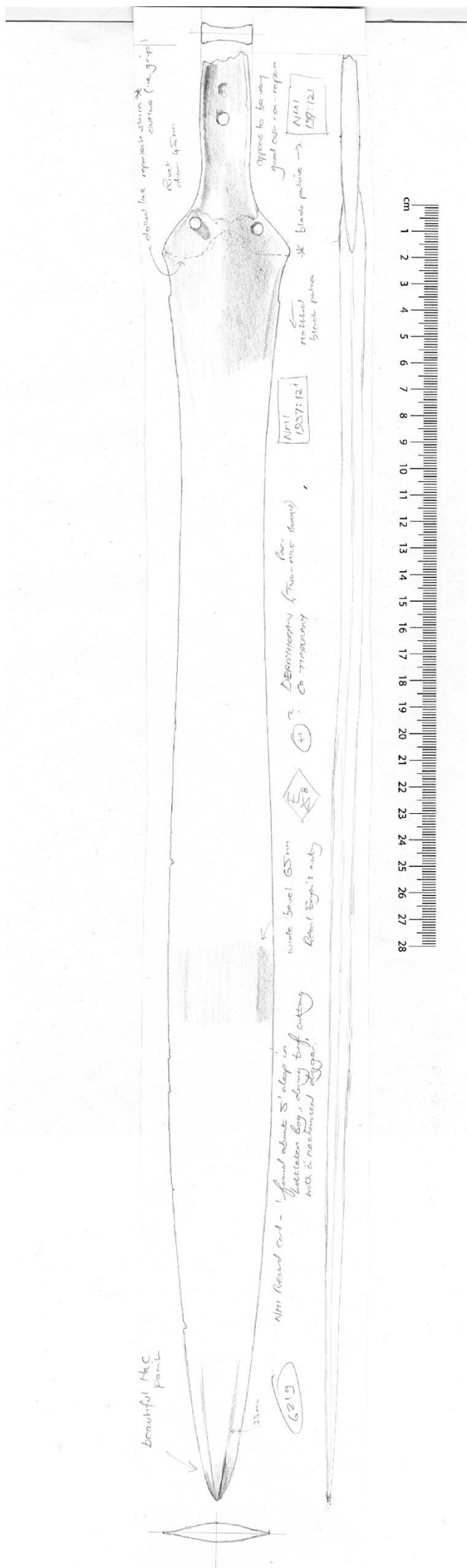
254

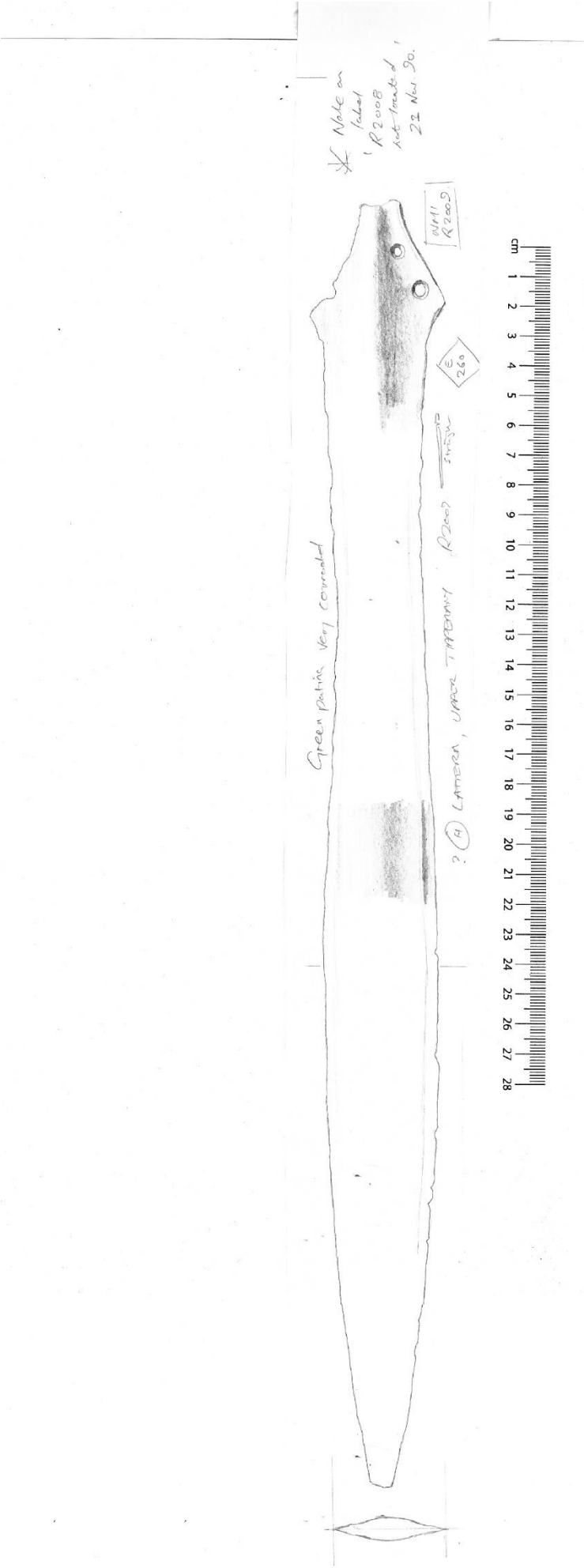


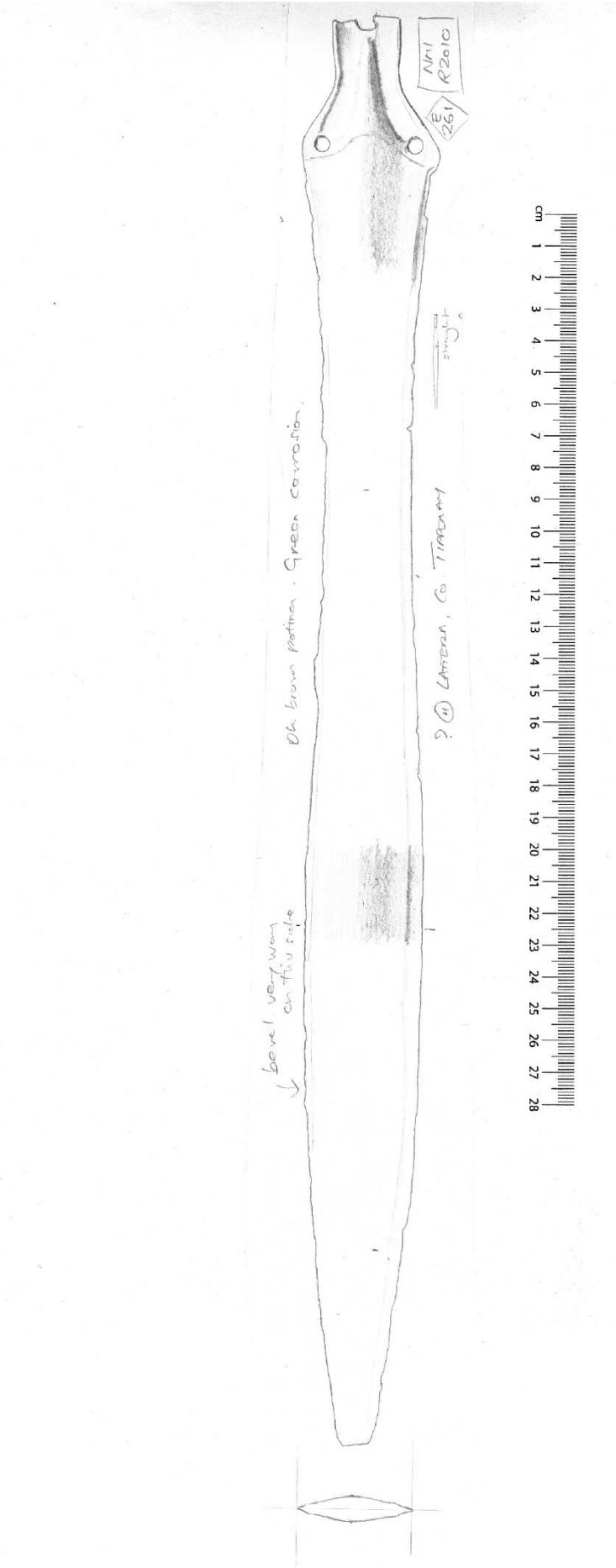


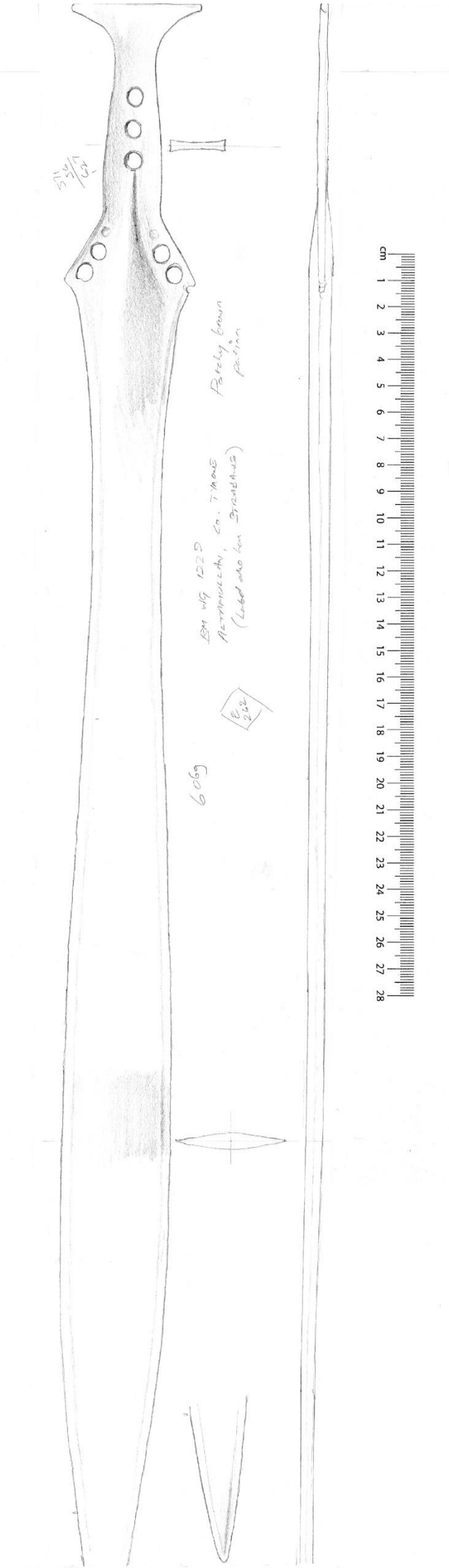
256

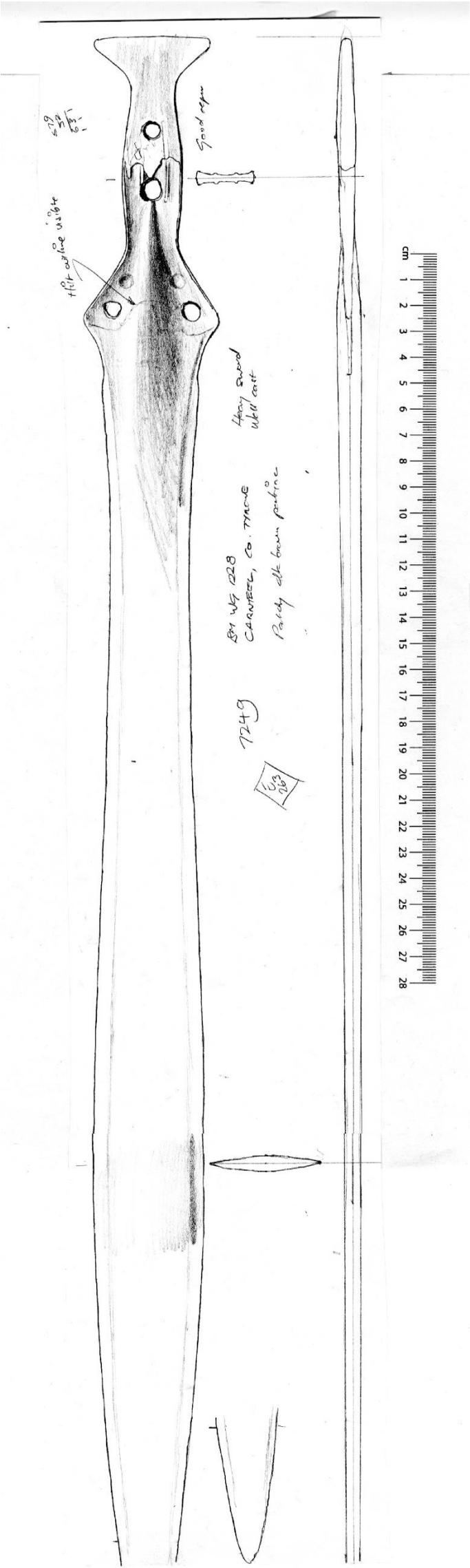




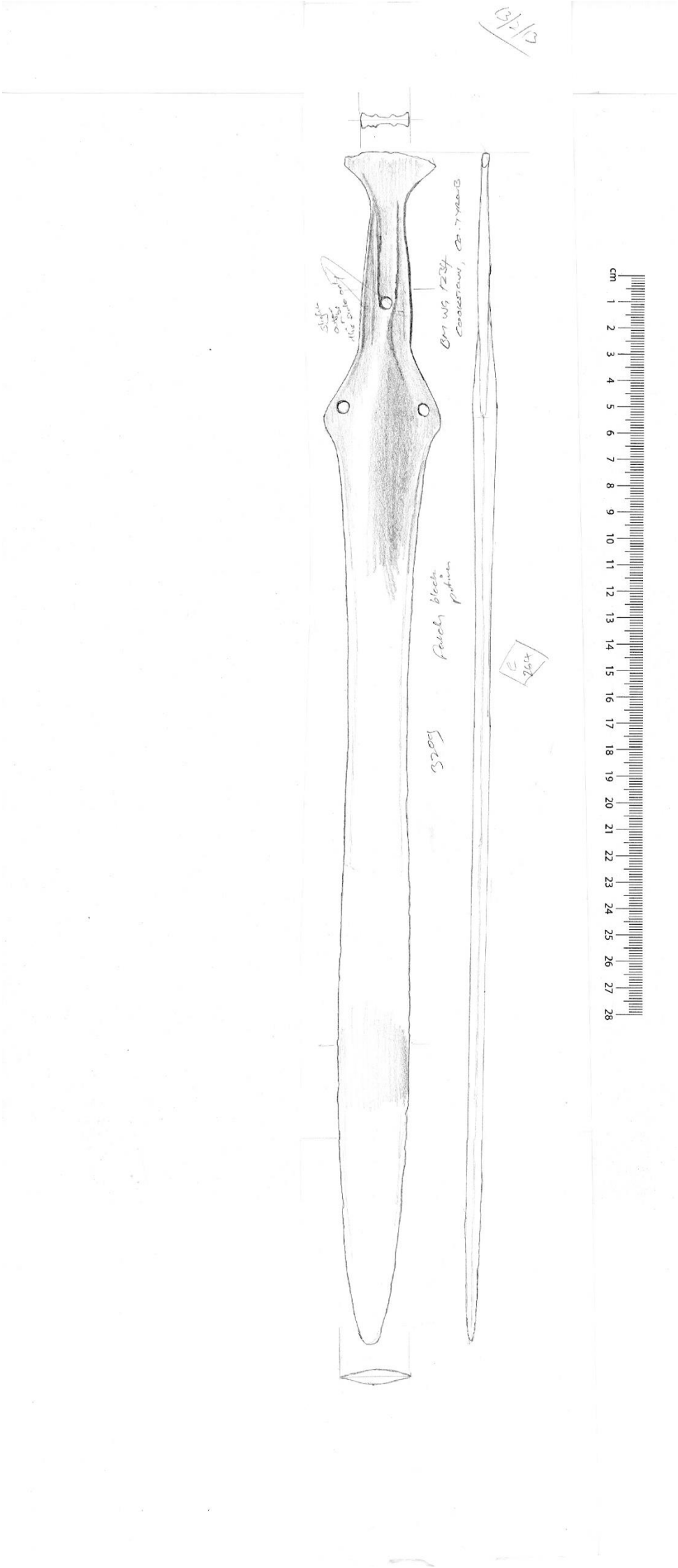




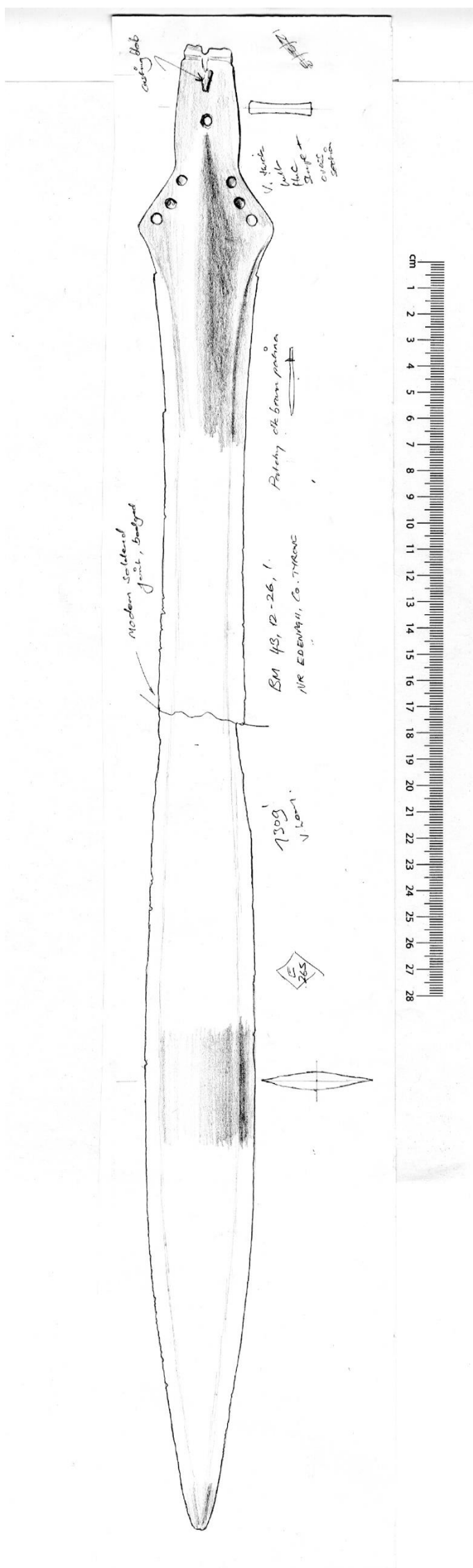


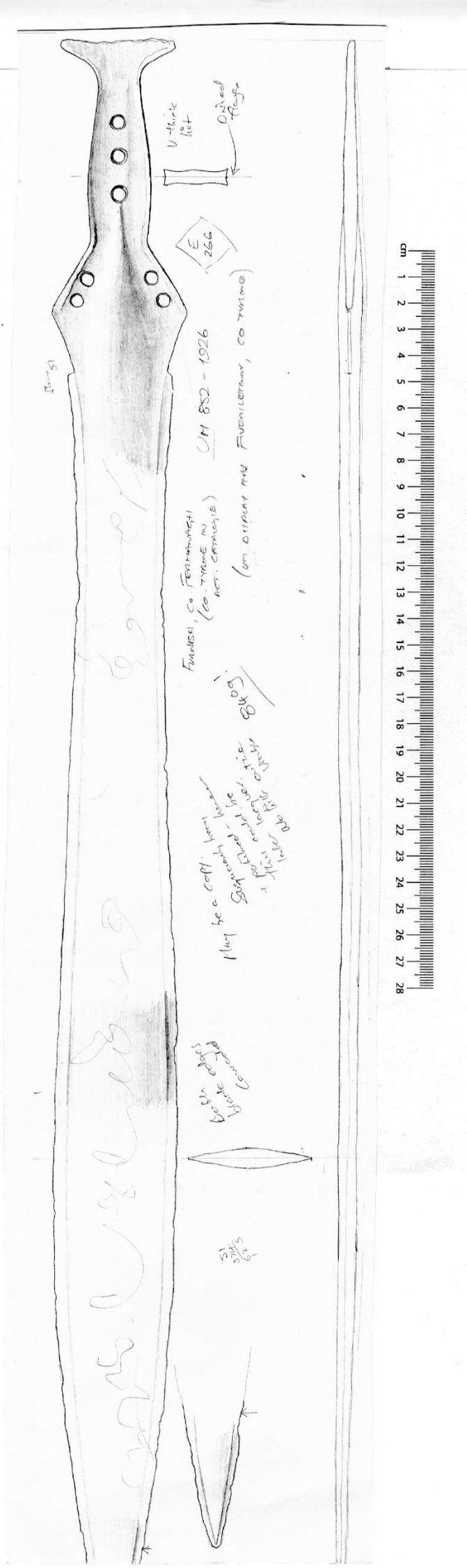


264

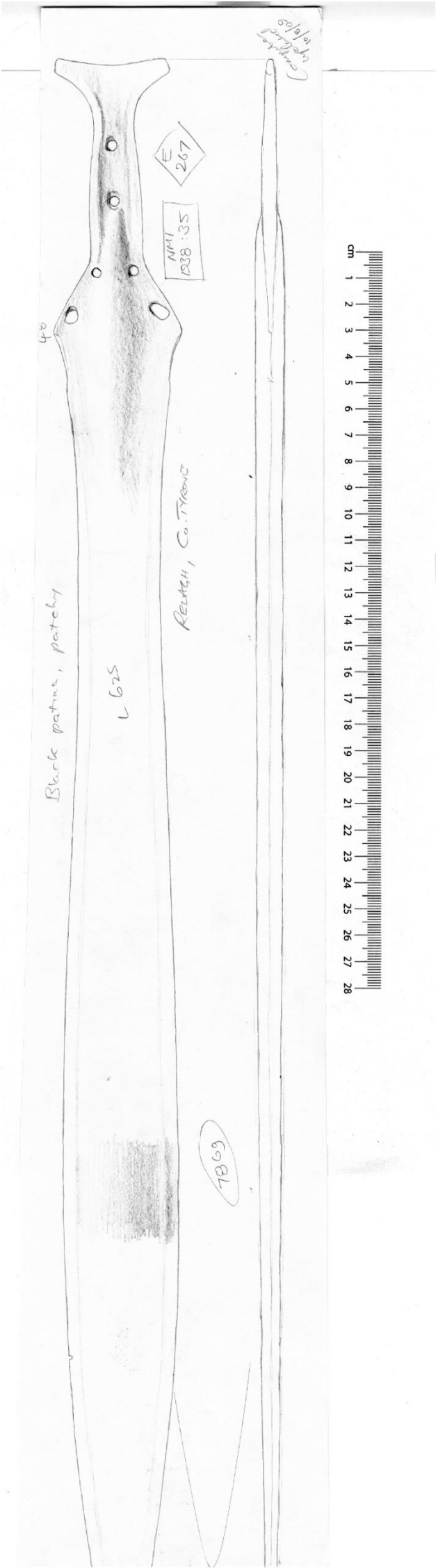


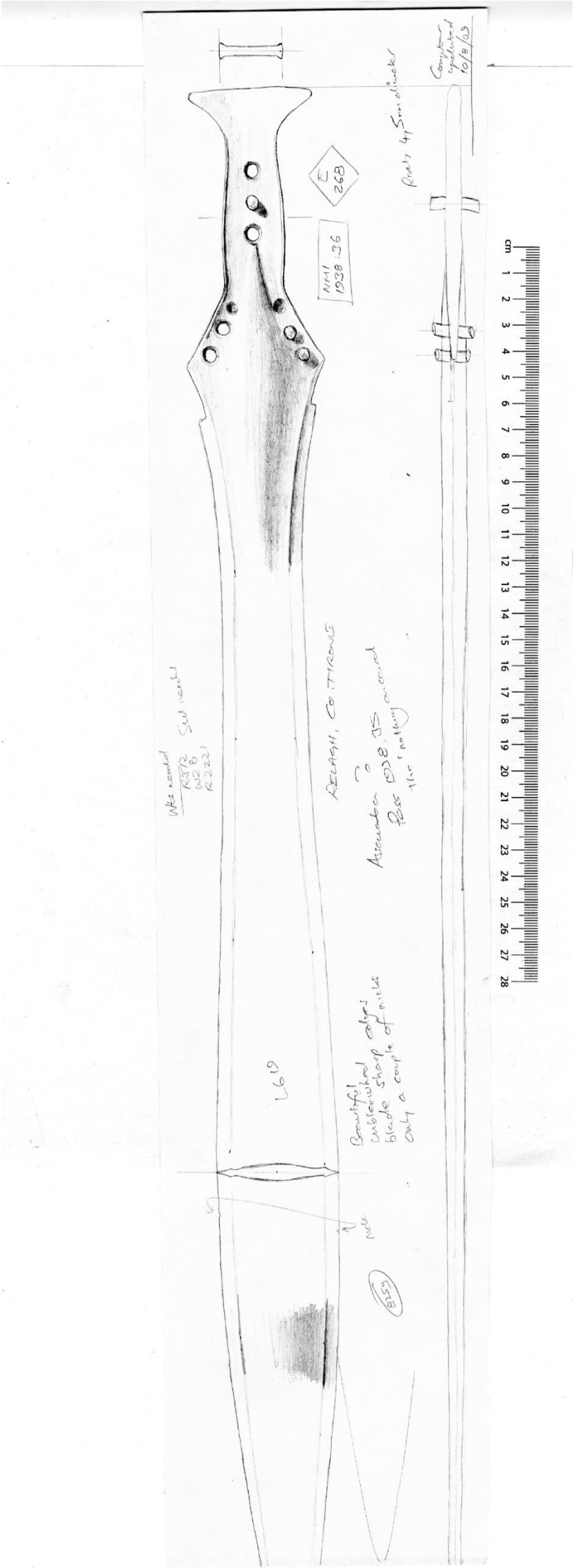
265

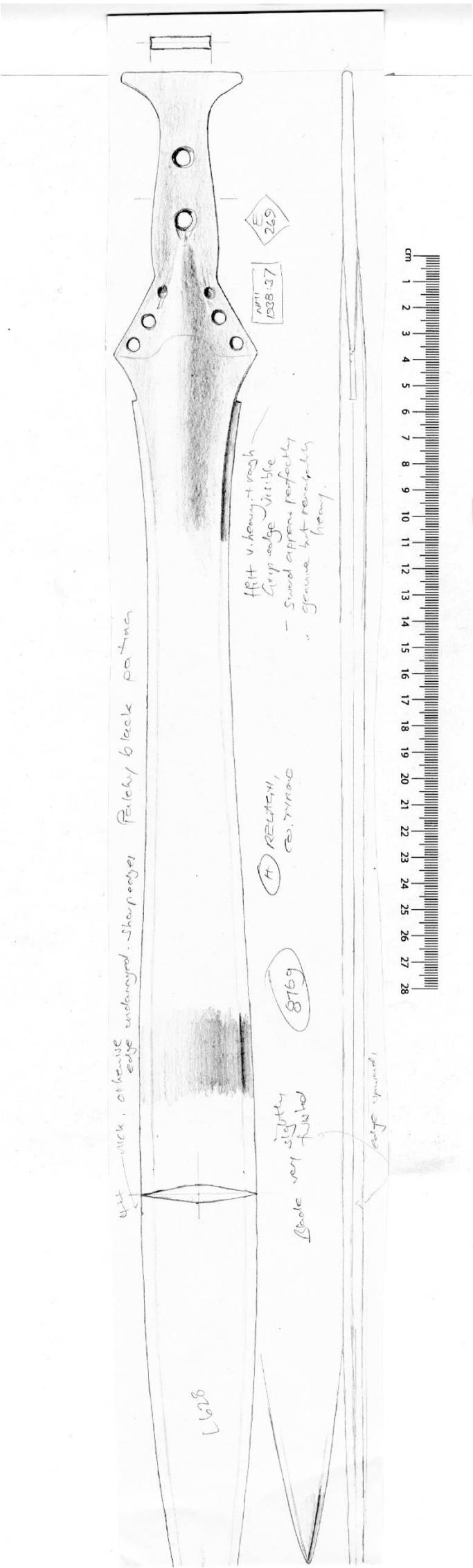




267

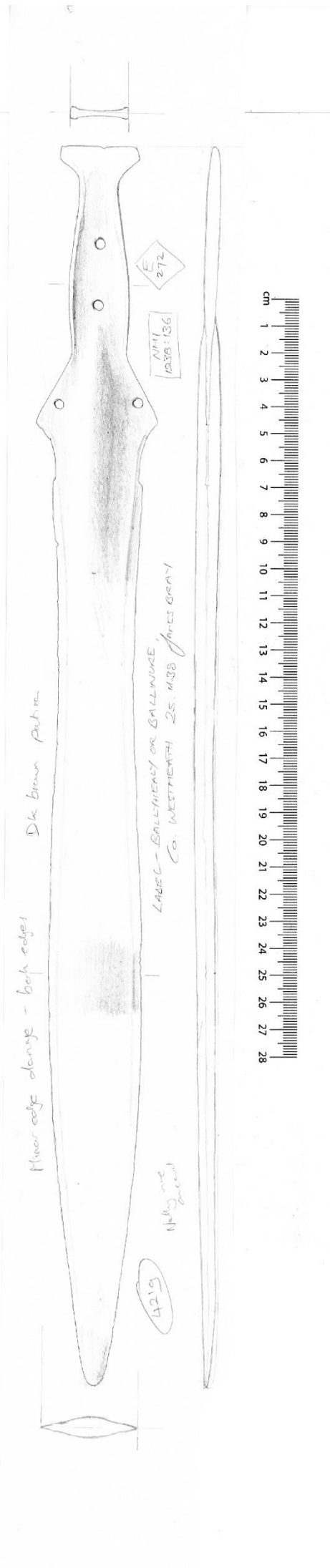


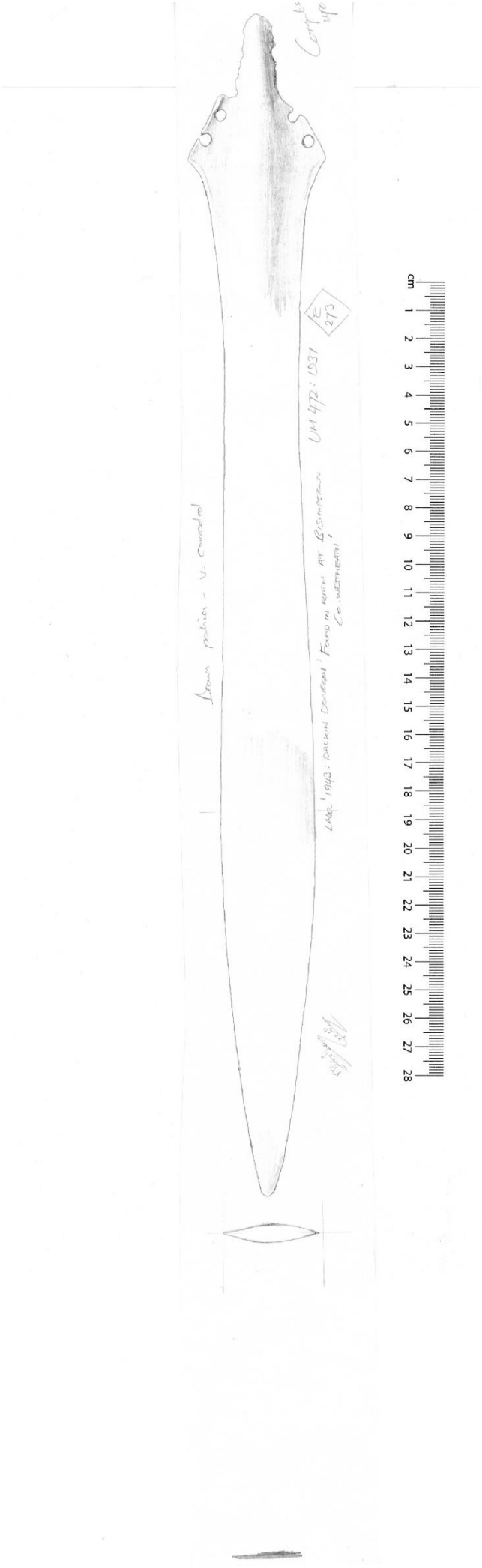


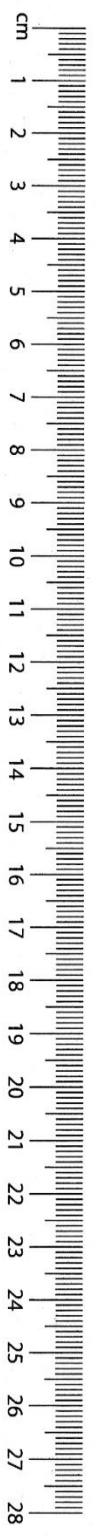
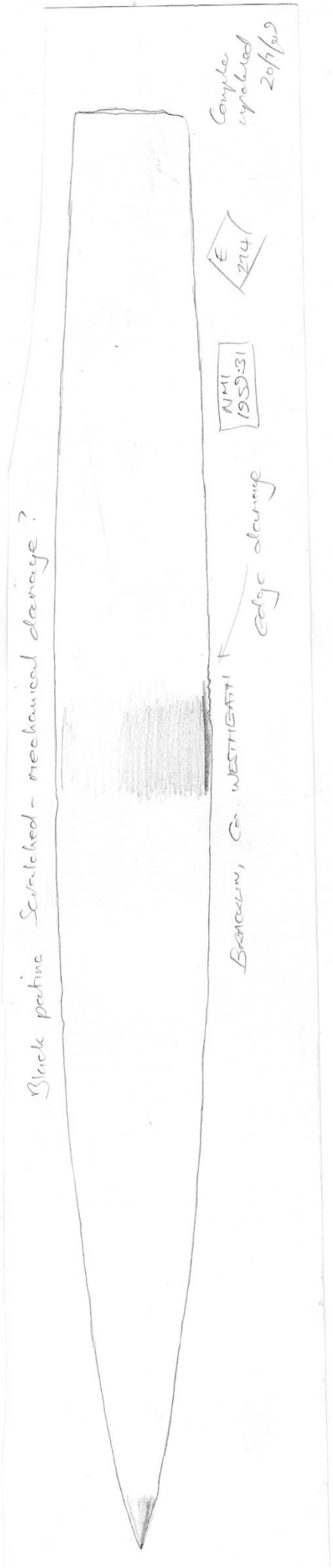


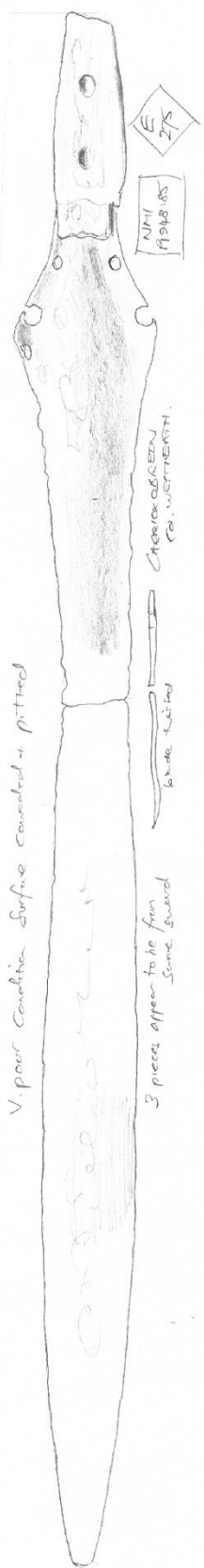
270



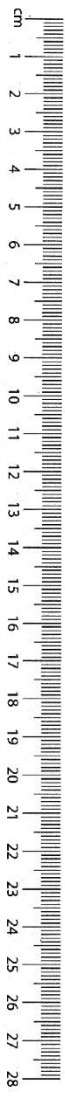


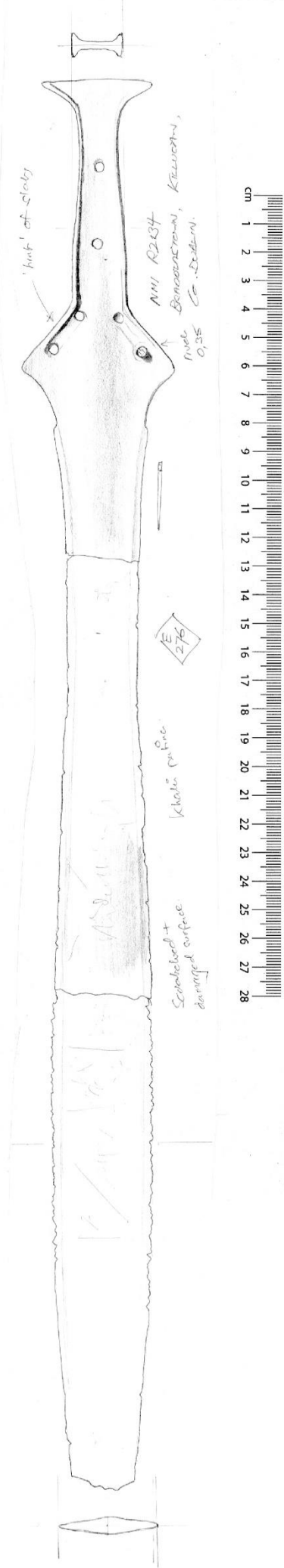


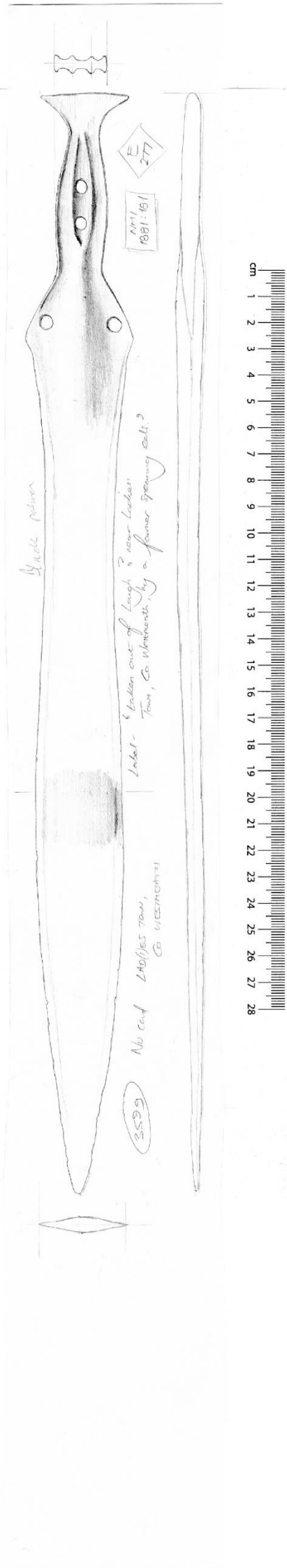


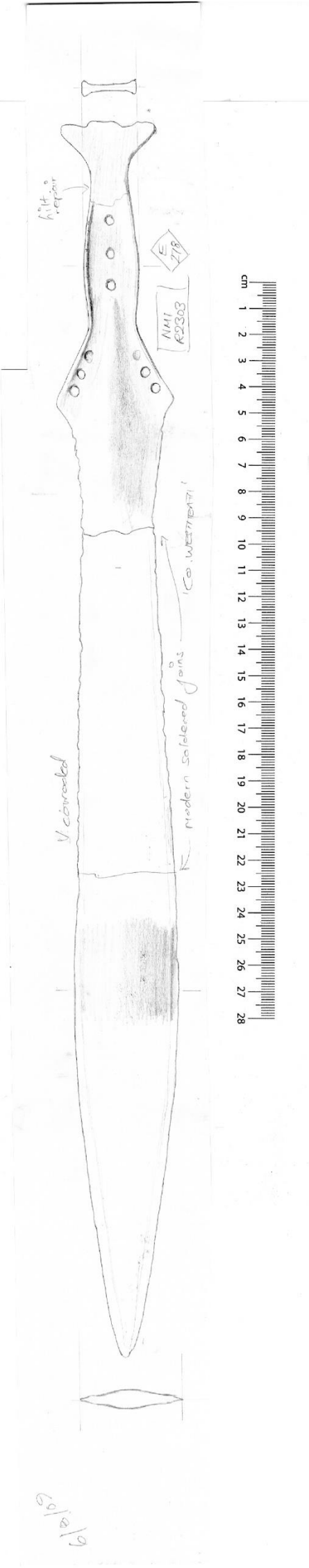


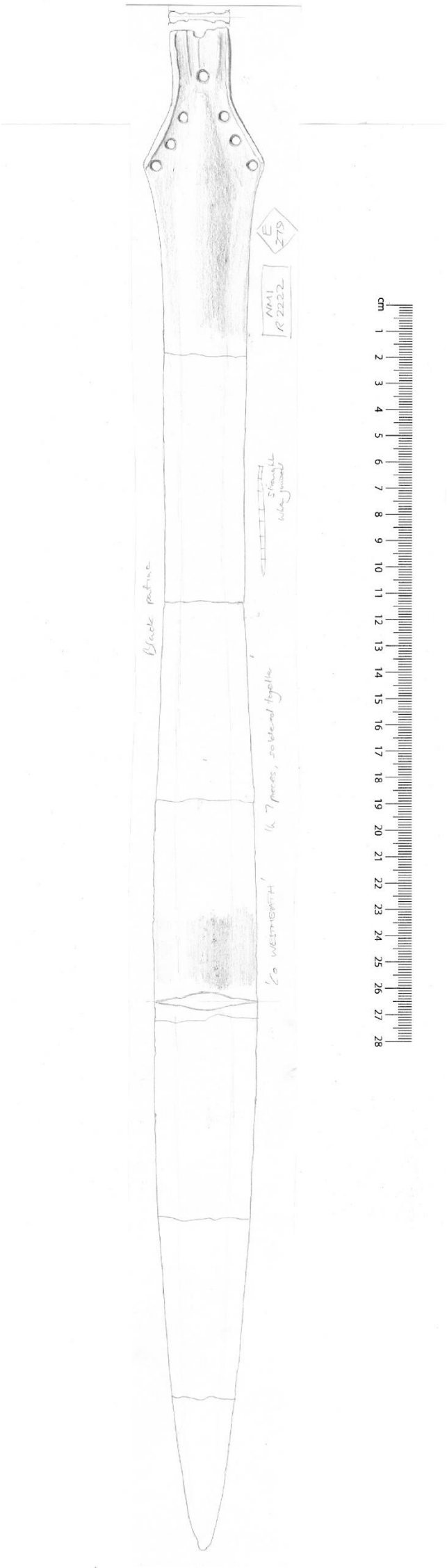
Complete
provided
10/4/05

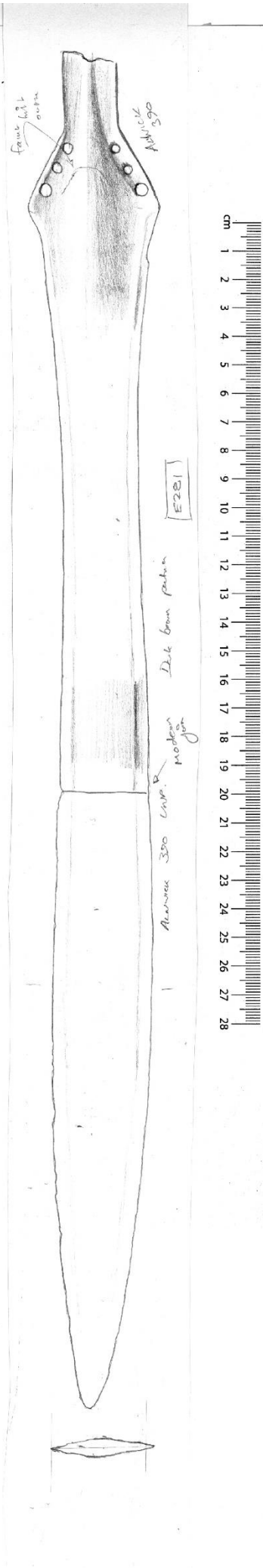




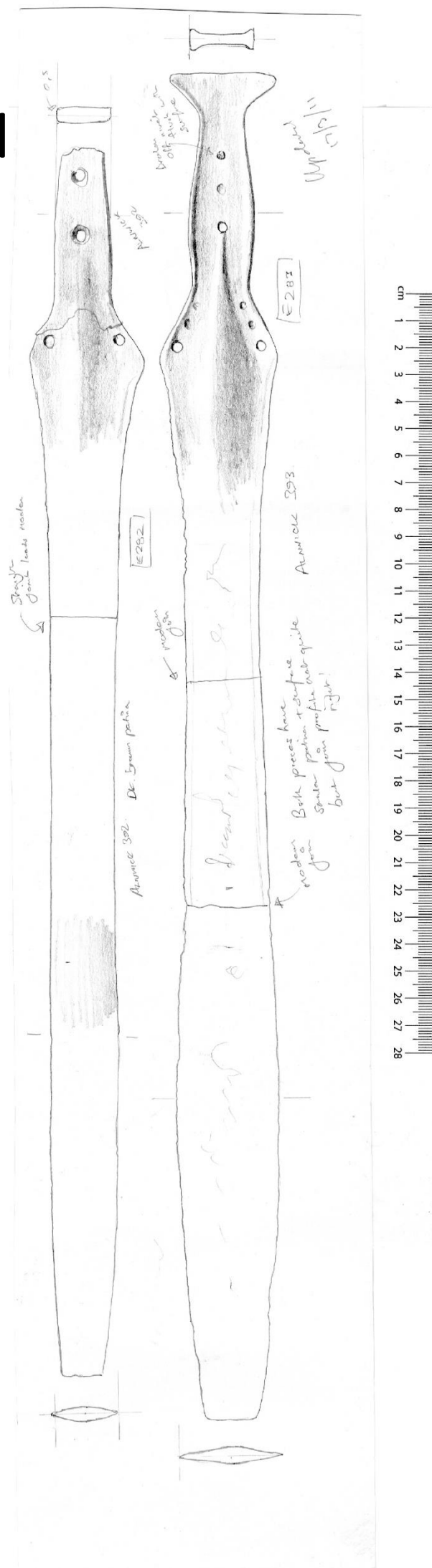


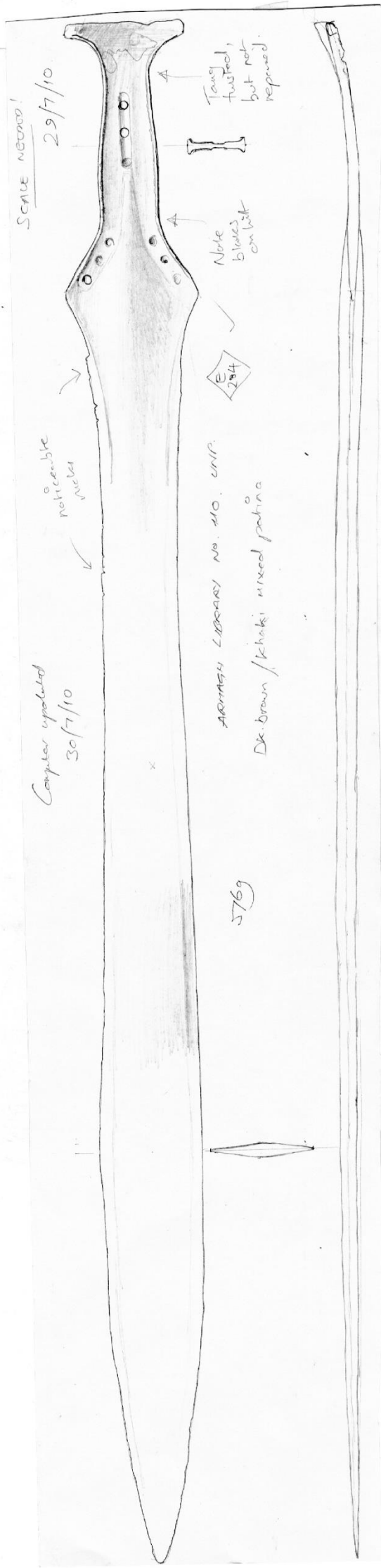


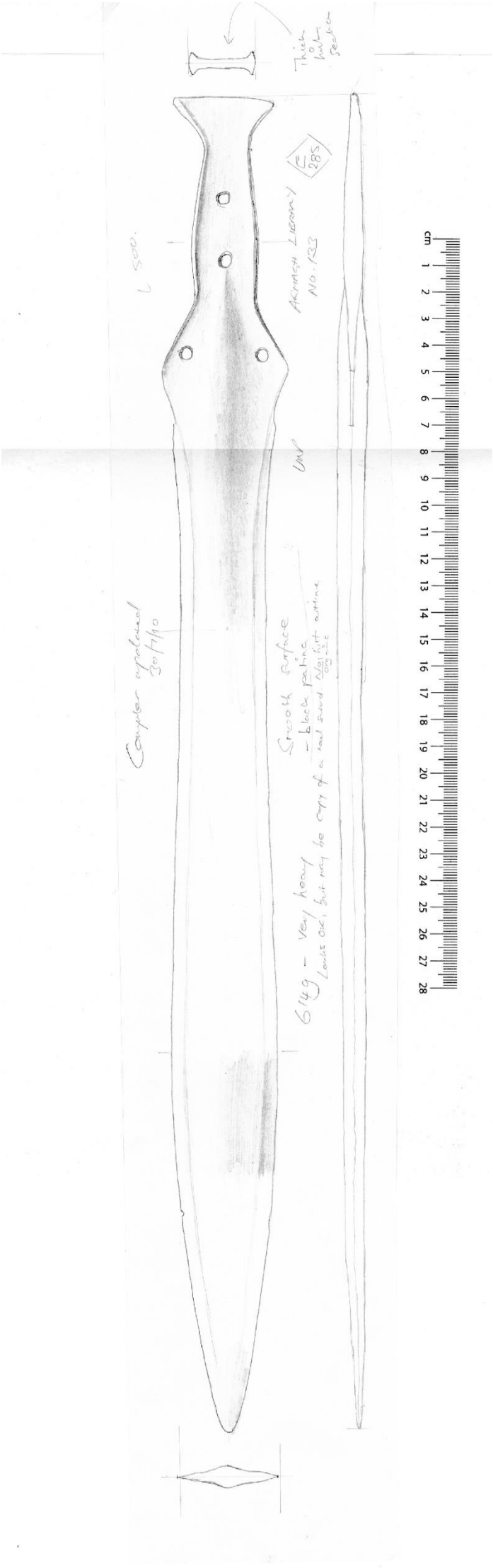


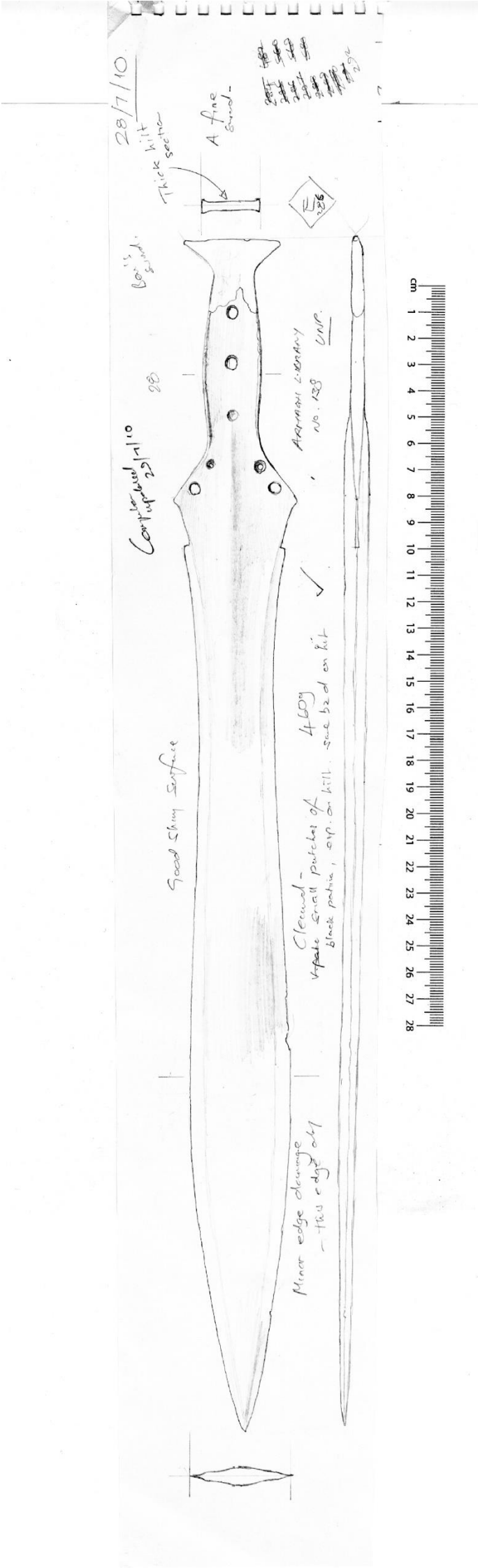


282 and 283

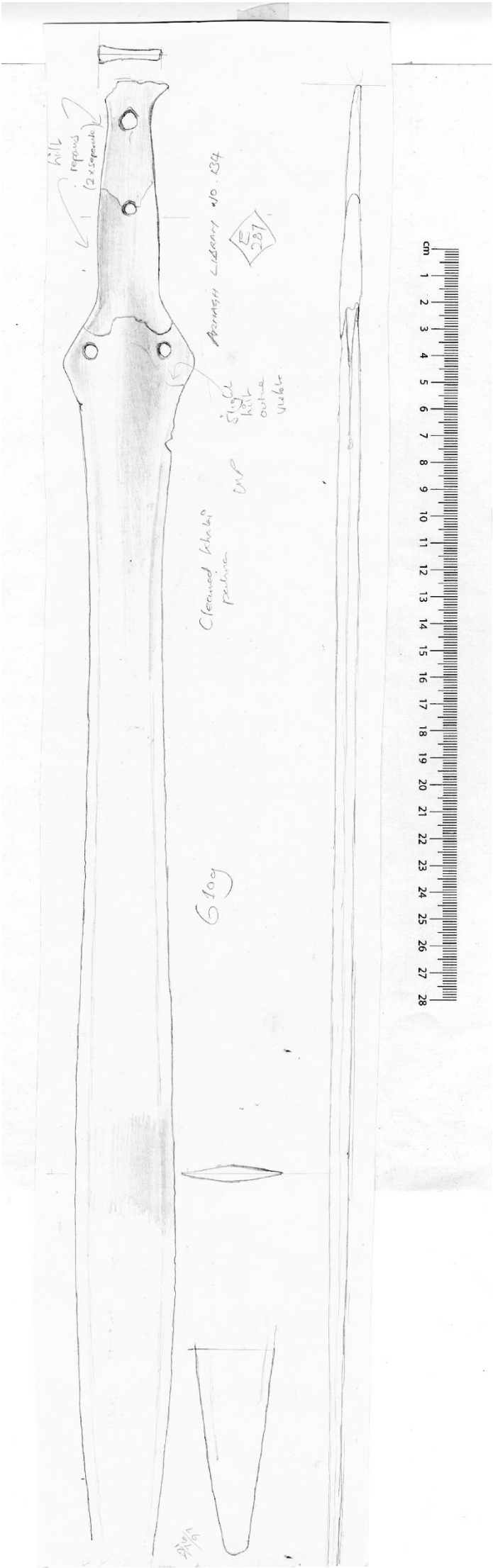


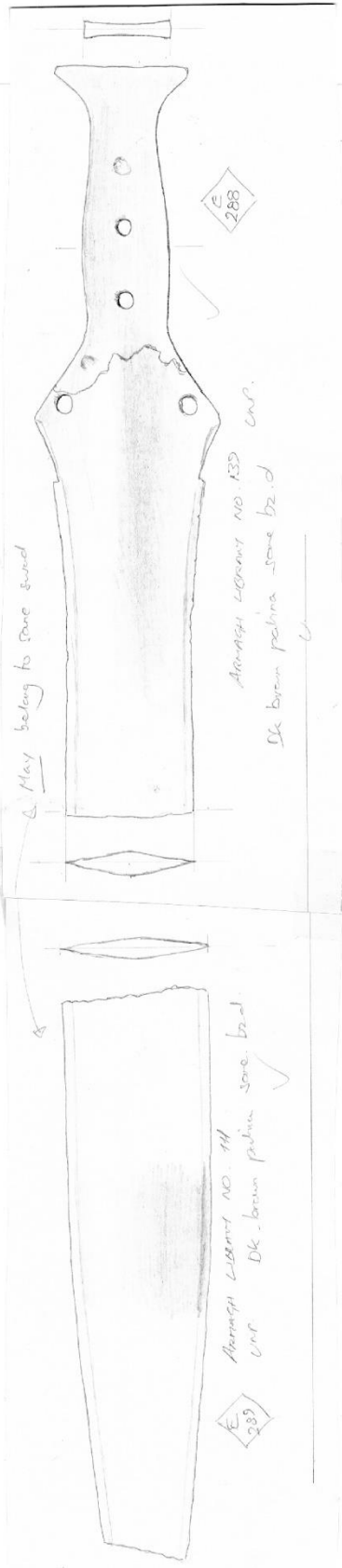




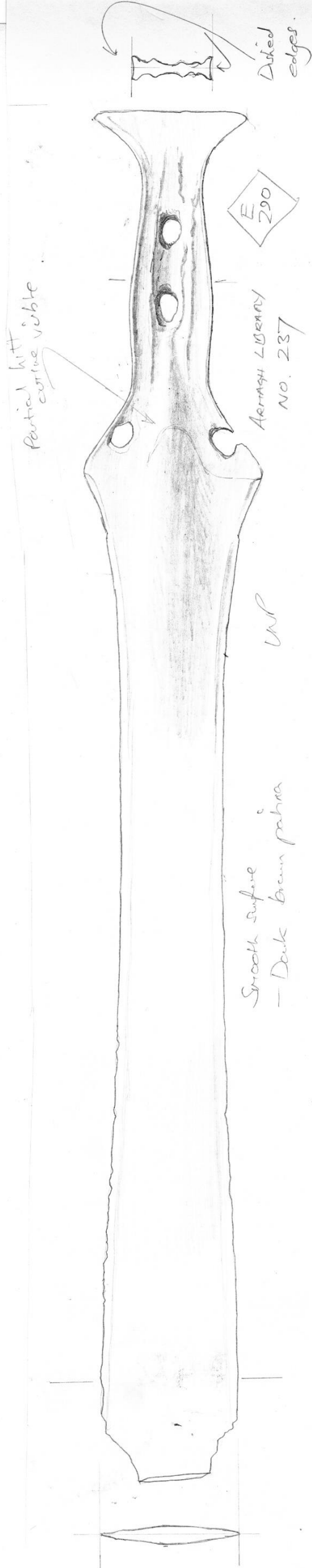


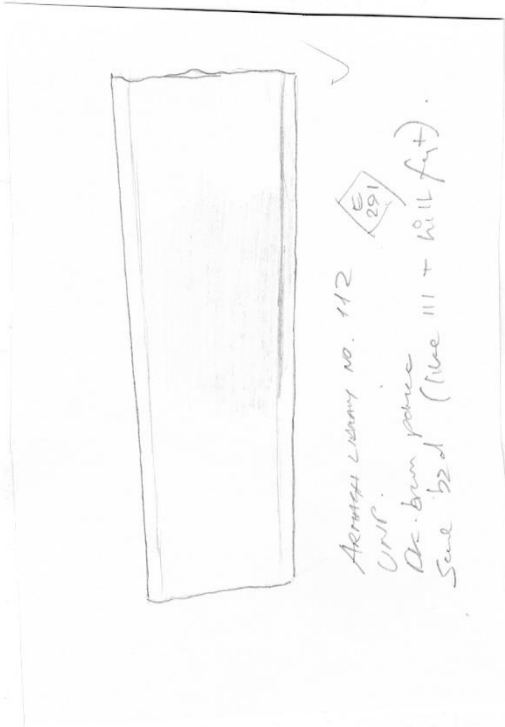
287

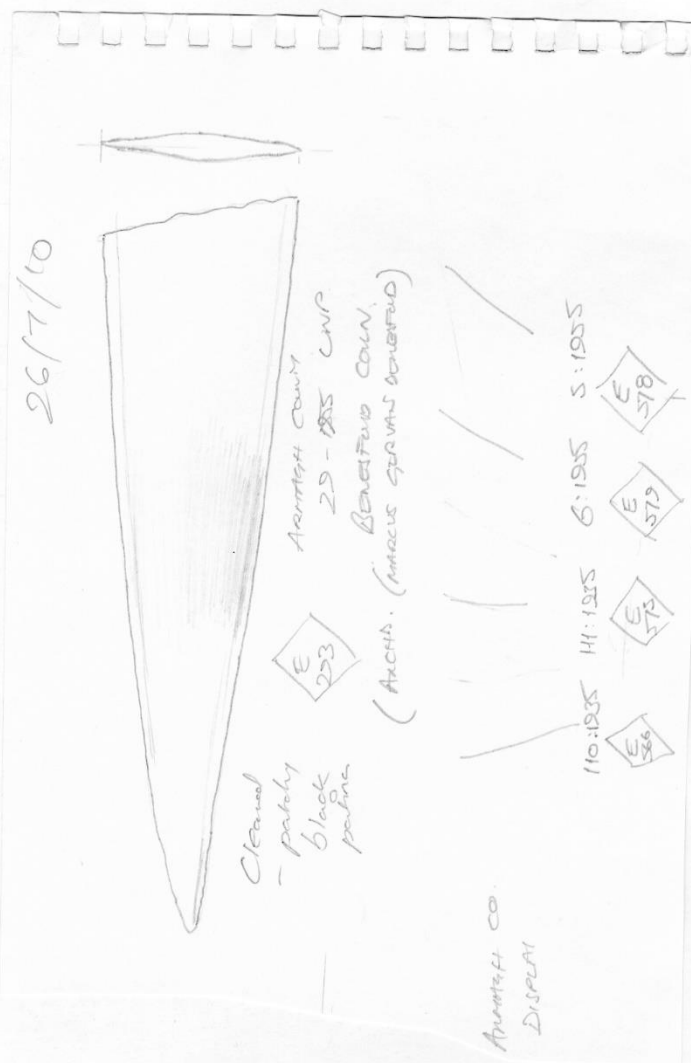




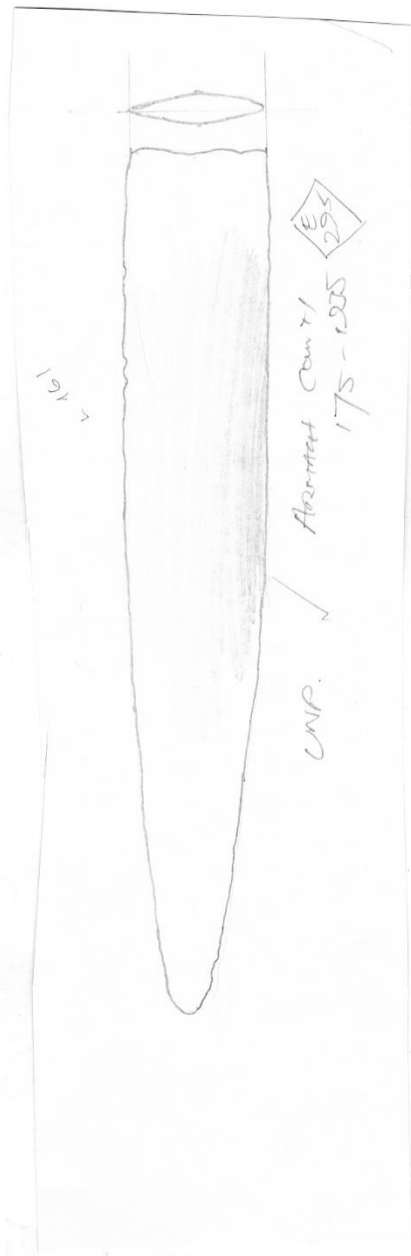
290



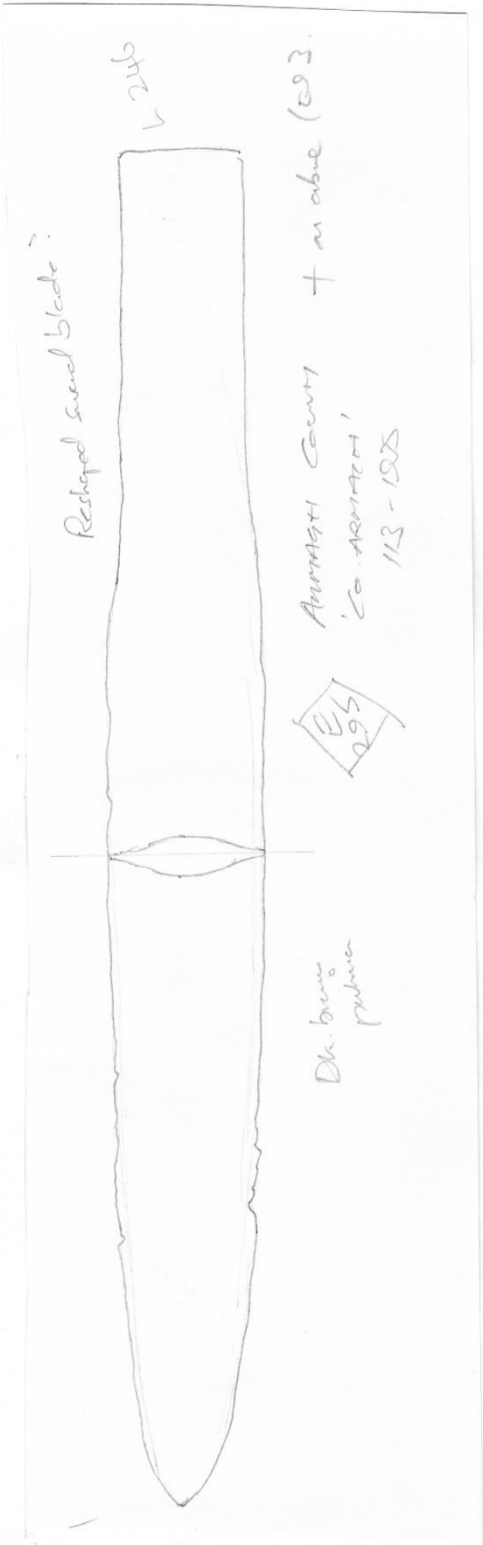


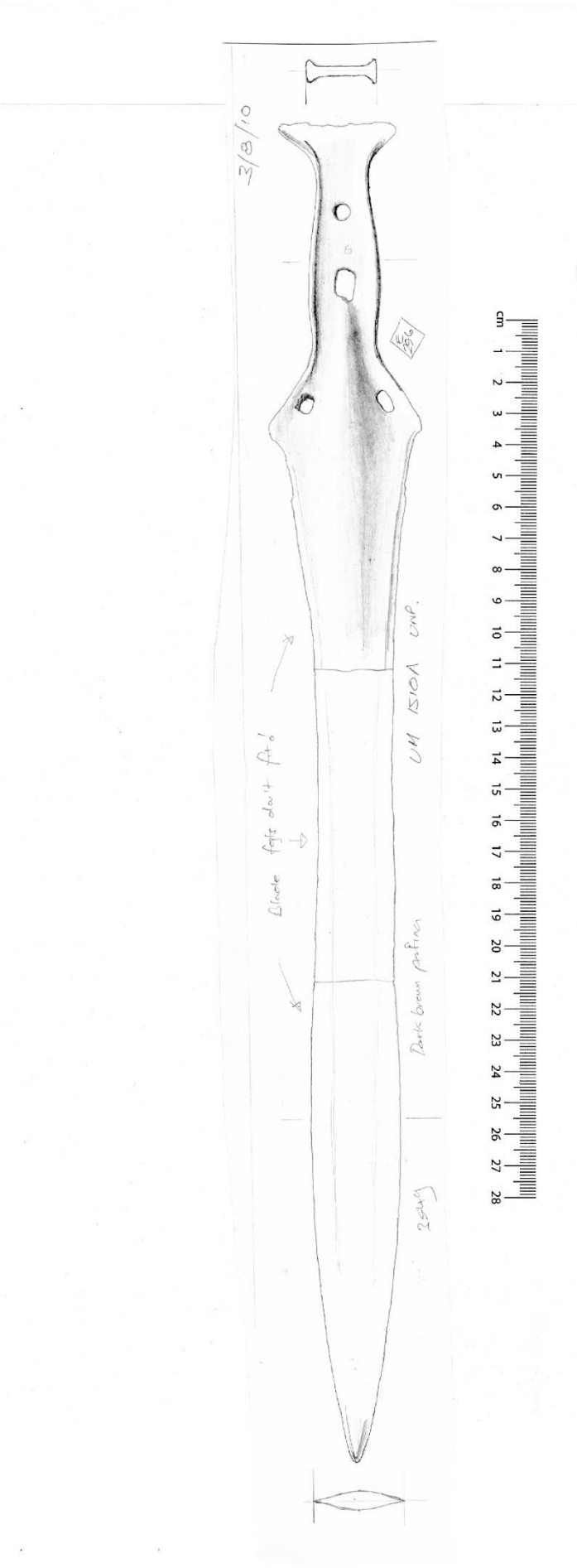


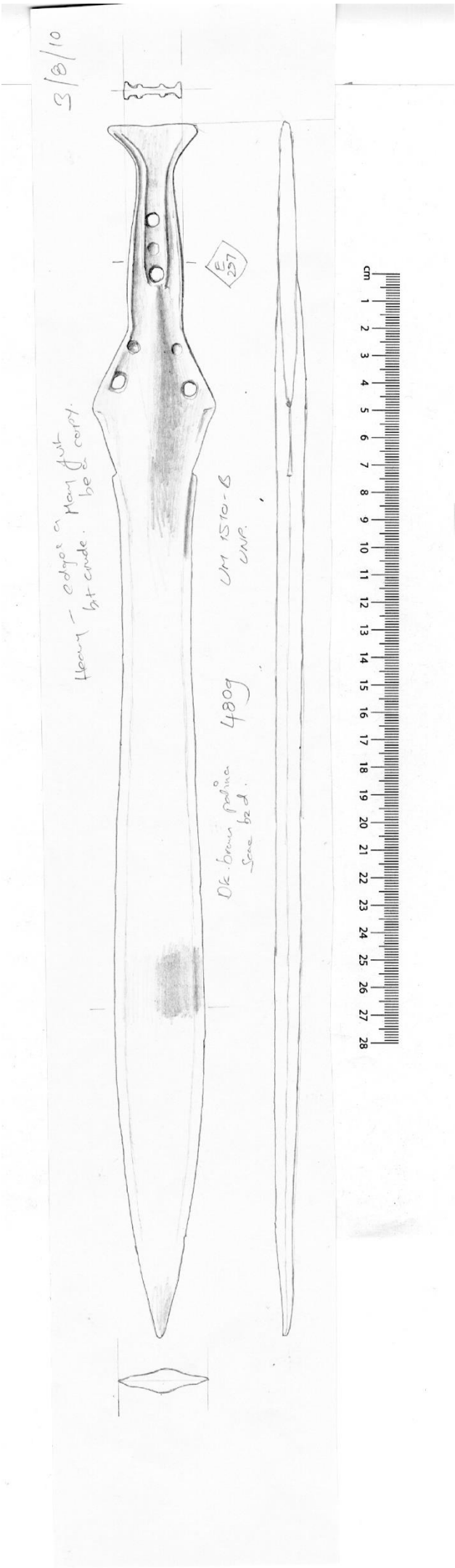


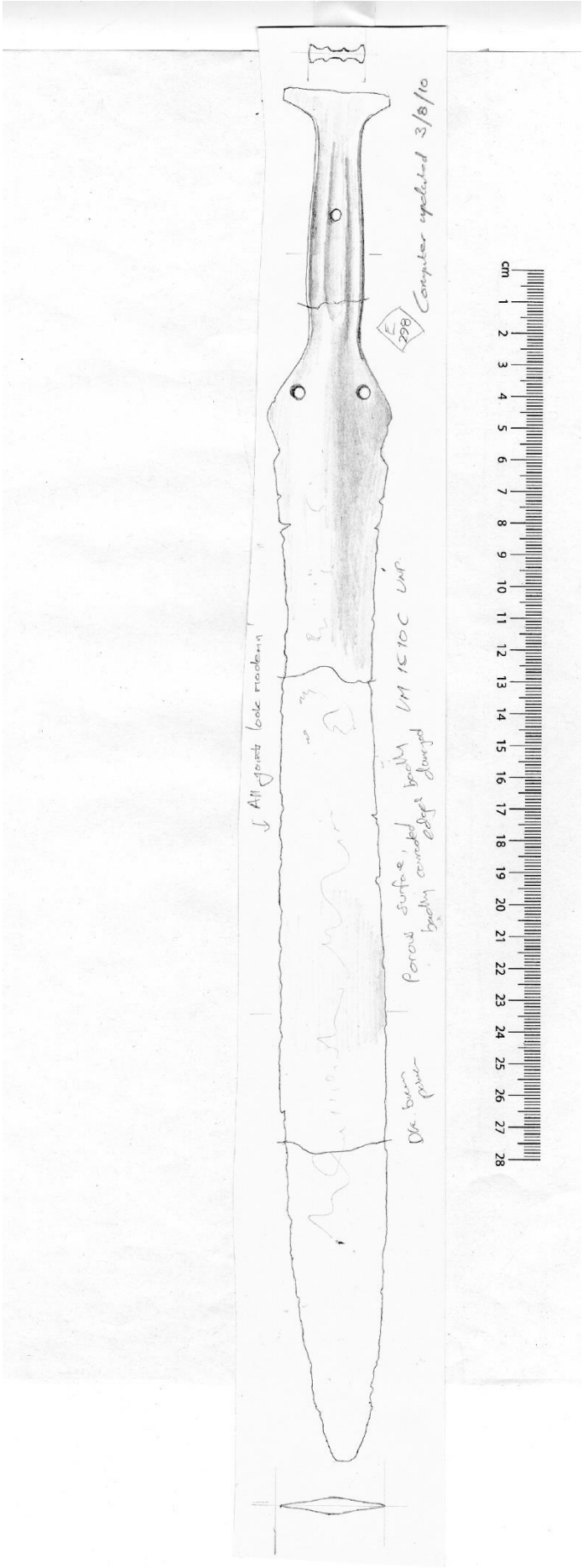


295 (2)

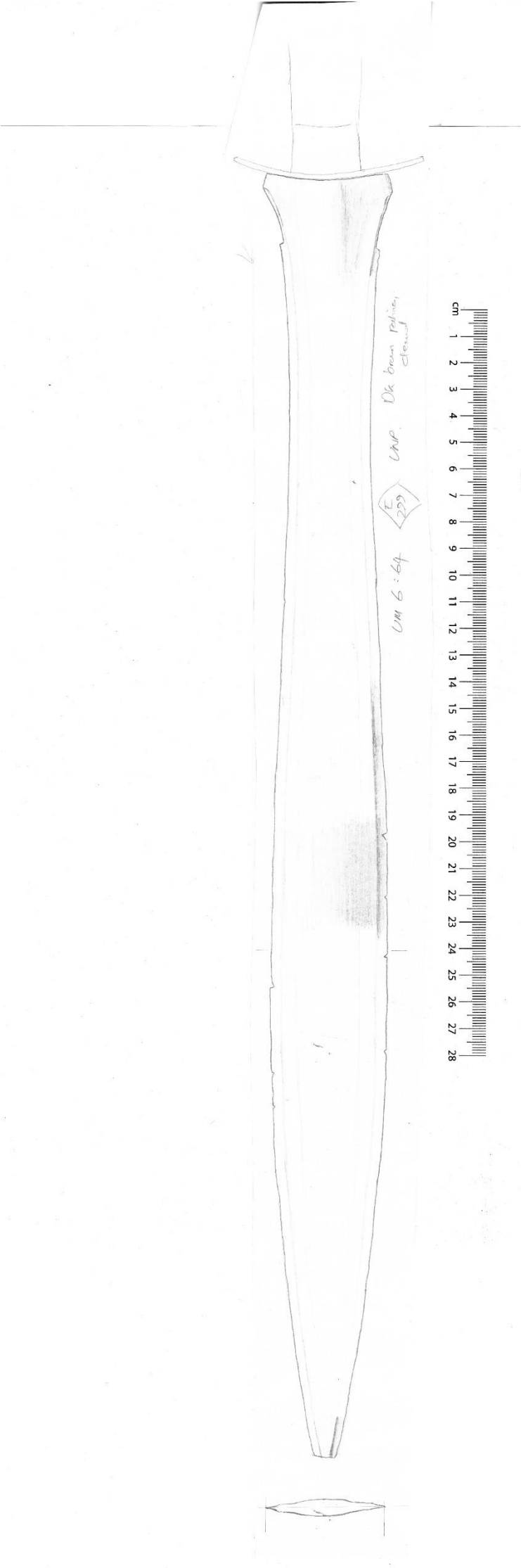




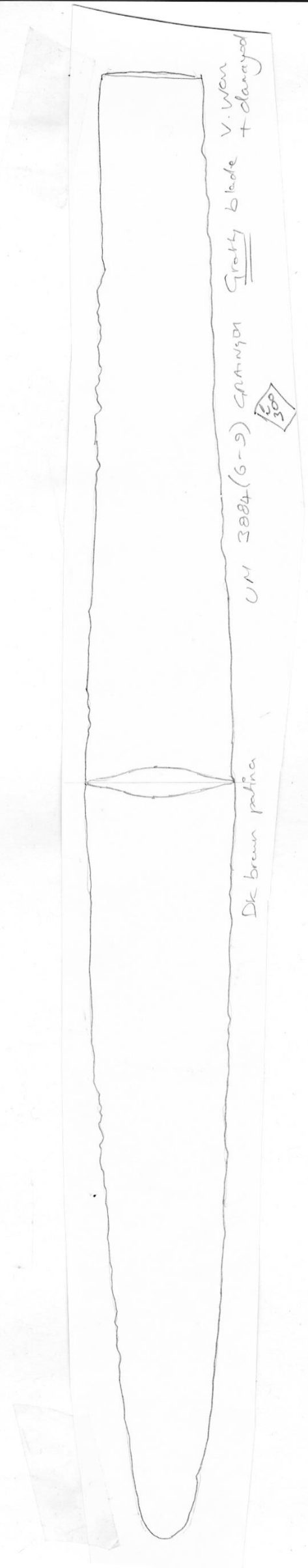




299



300



301



Dk brown / green patina

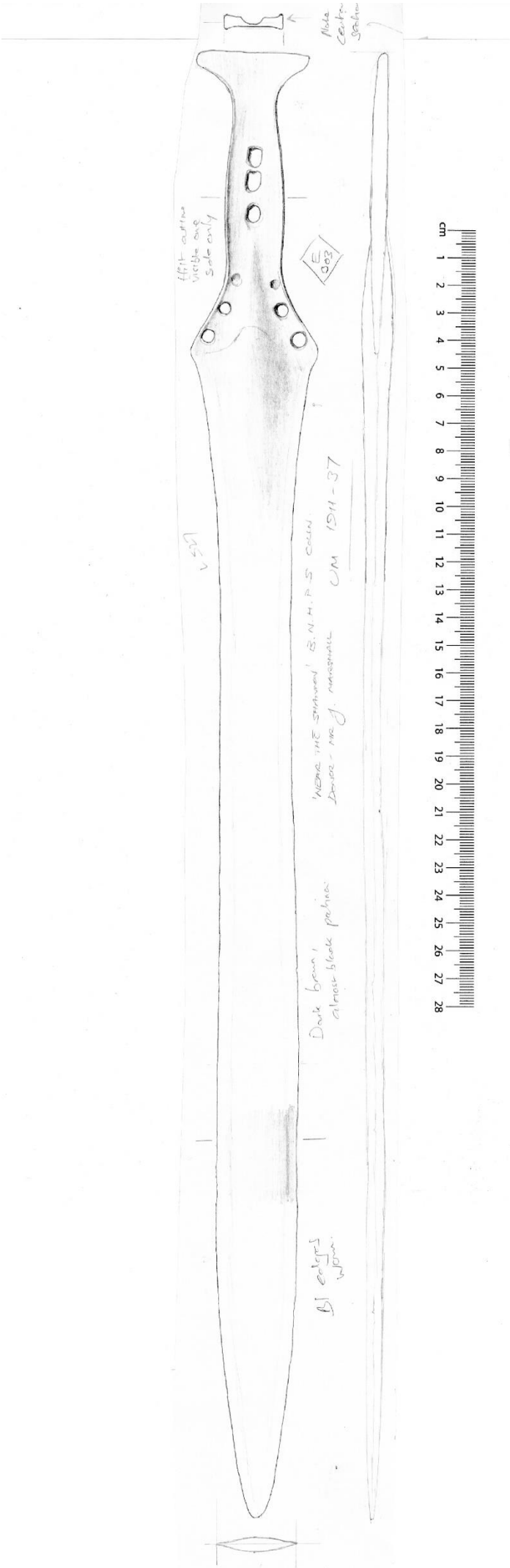
UM 3890 (6-10) summer

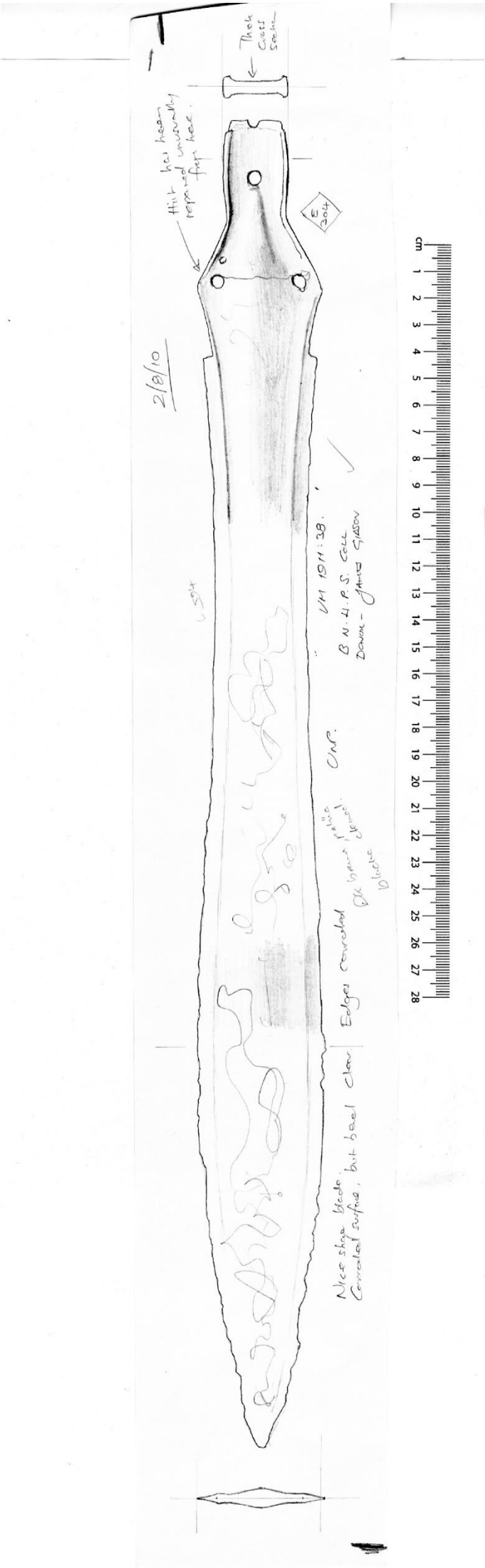
301

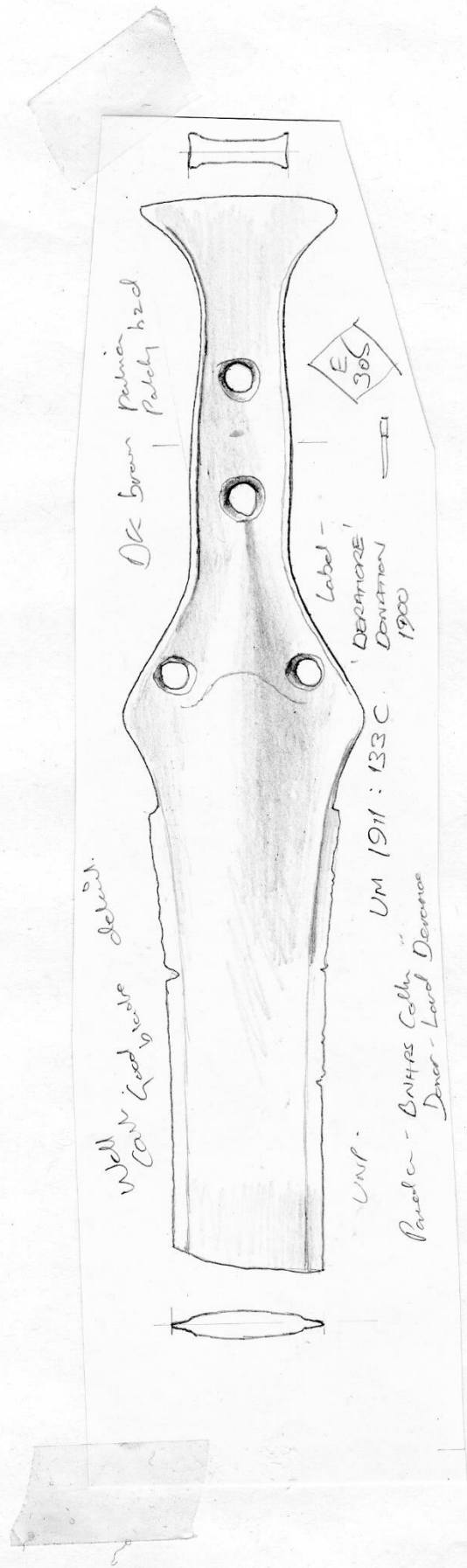
Archer groby black Co
V. Wm + changed. up

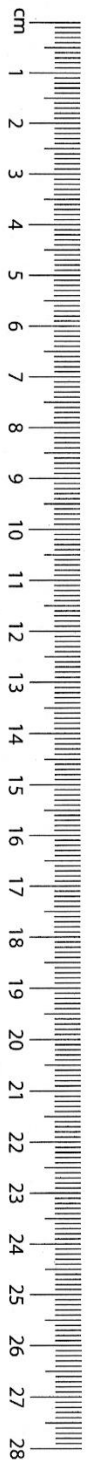


303

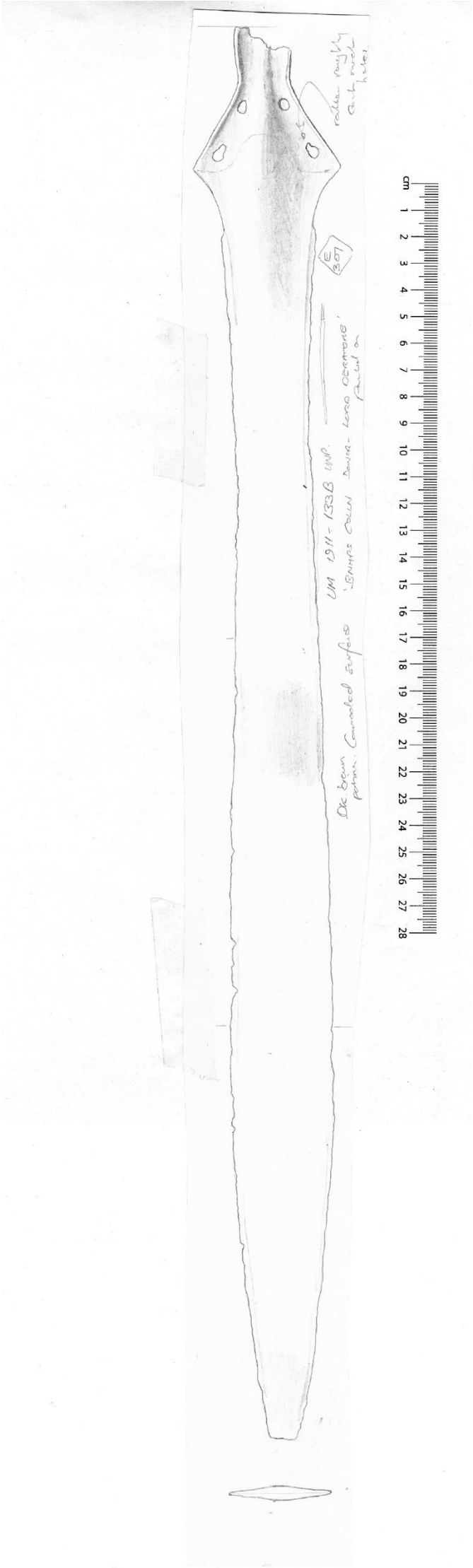




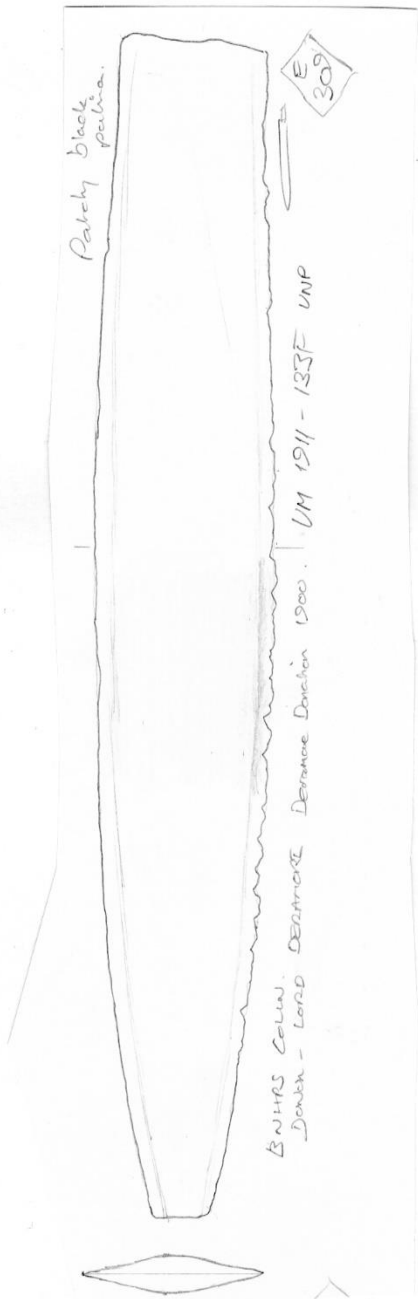




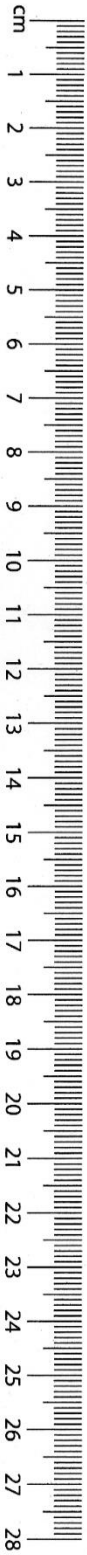
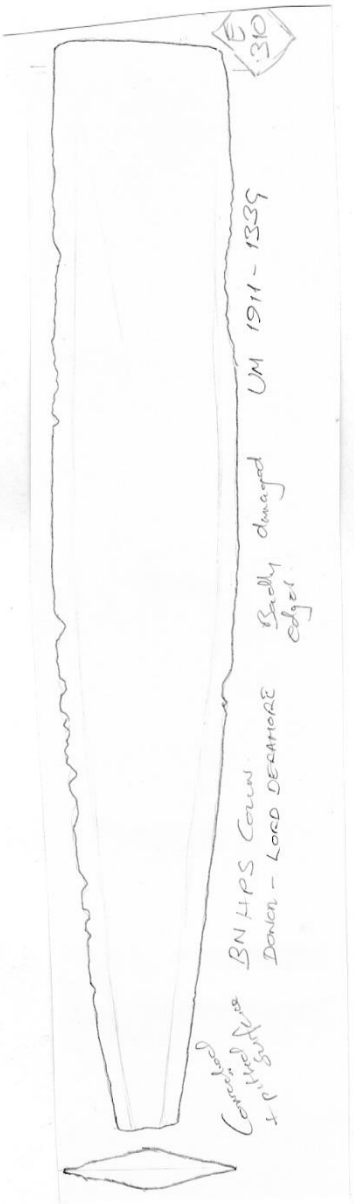
307



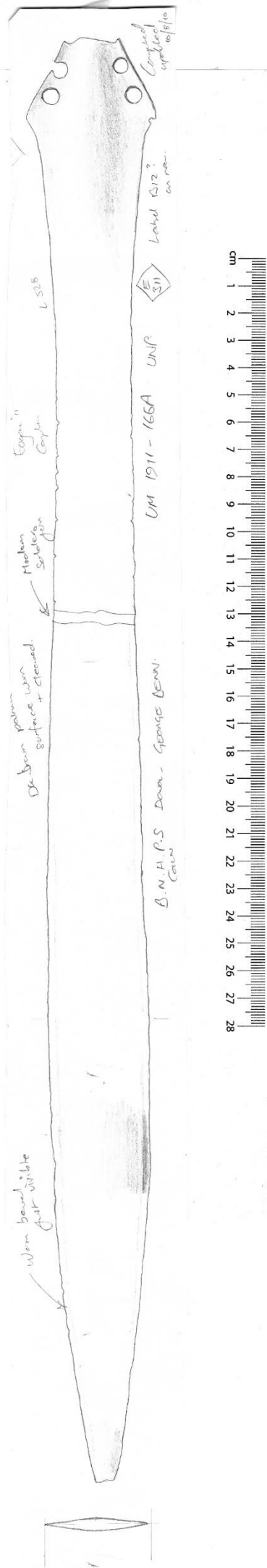




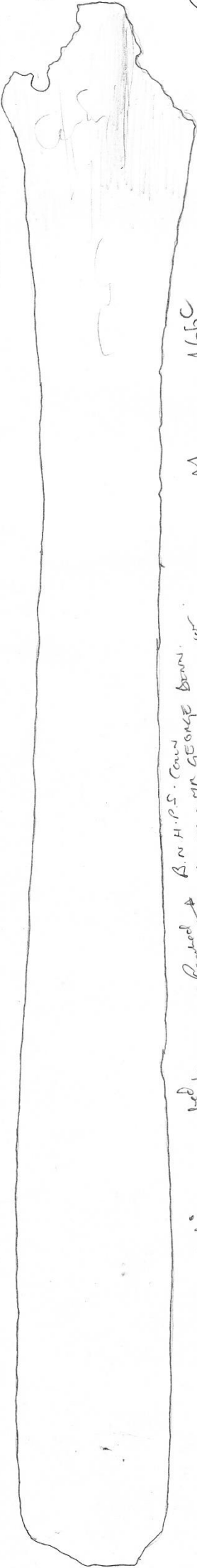
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Computer model
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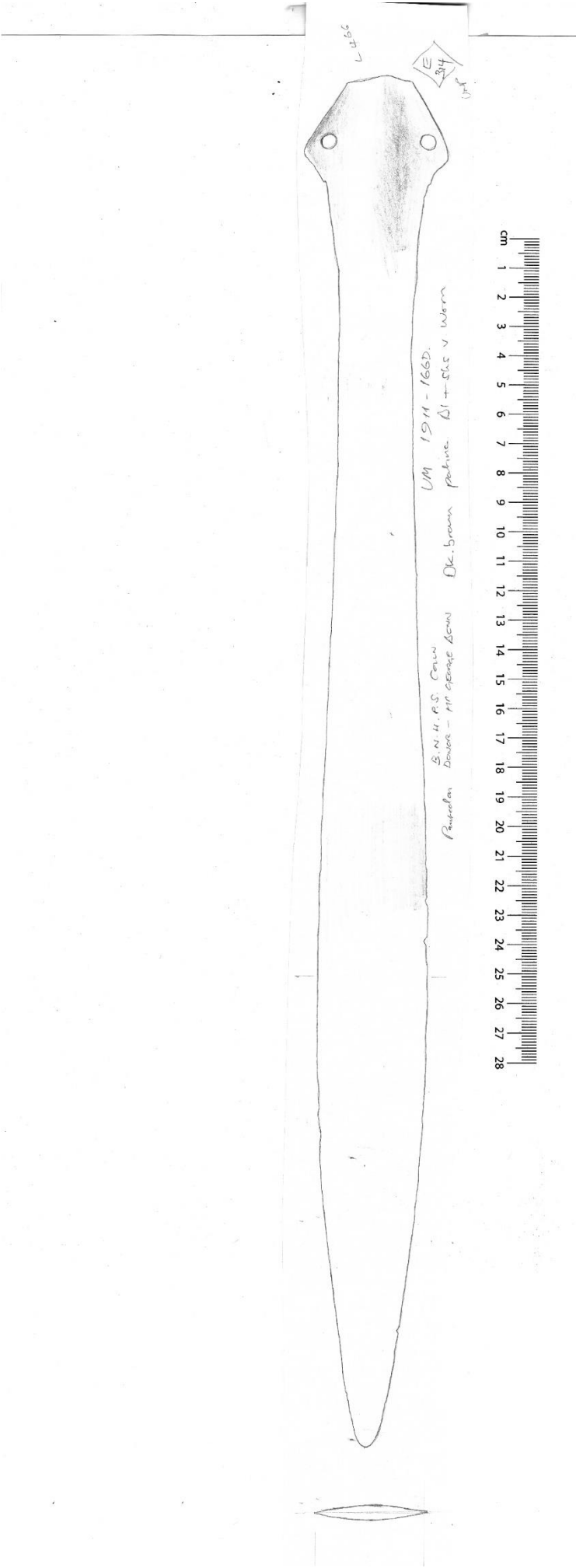
UM 1911-165C

A.N.H.S. Conn.
Donor - Mr GEORGE BROWN
Edge of bone

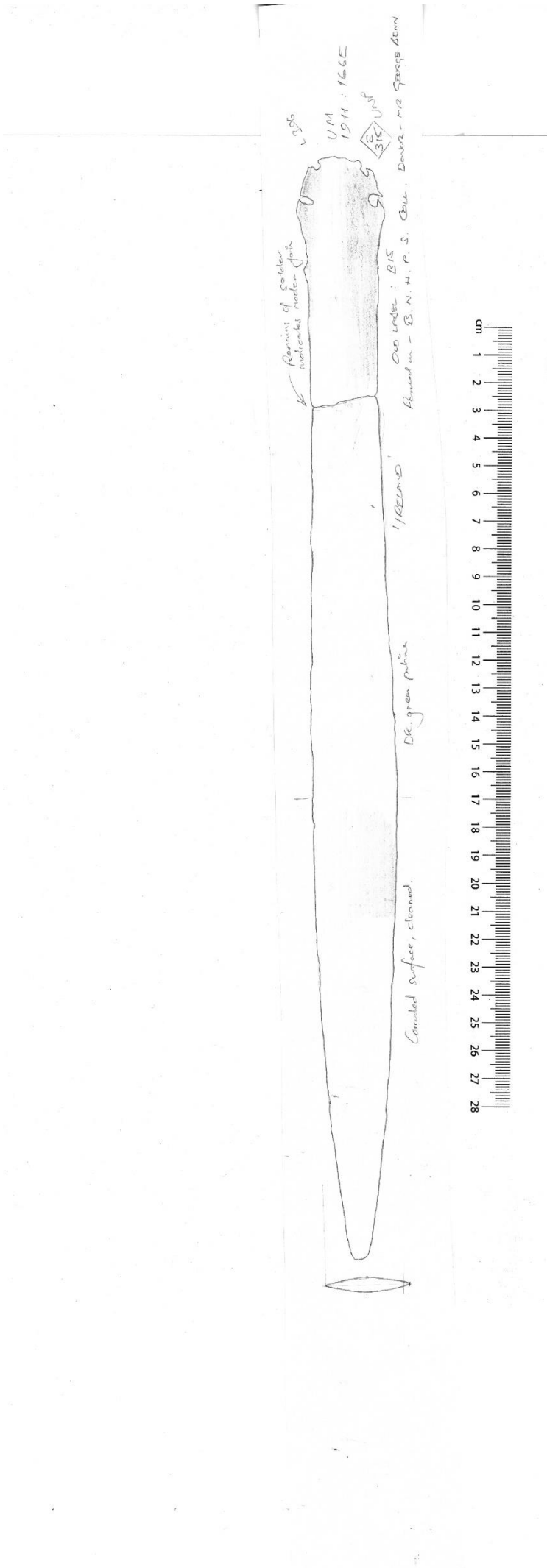
Painted

Whitish paint
covered
x-ray

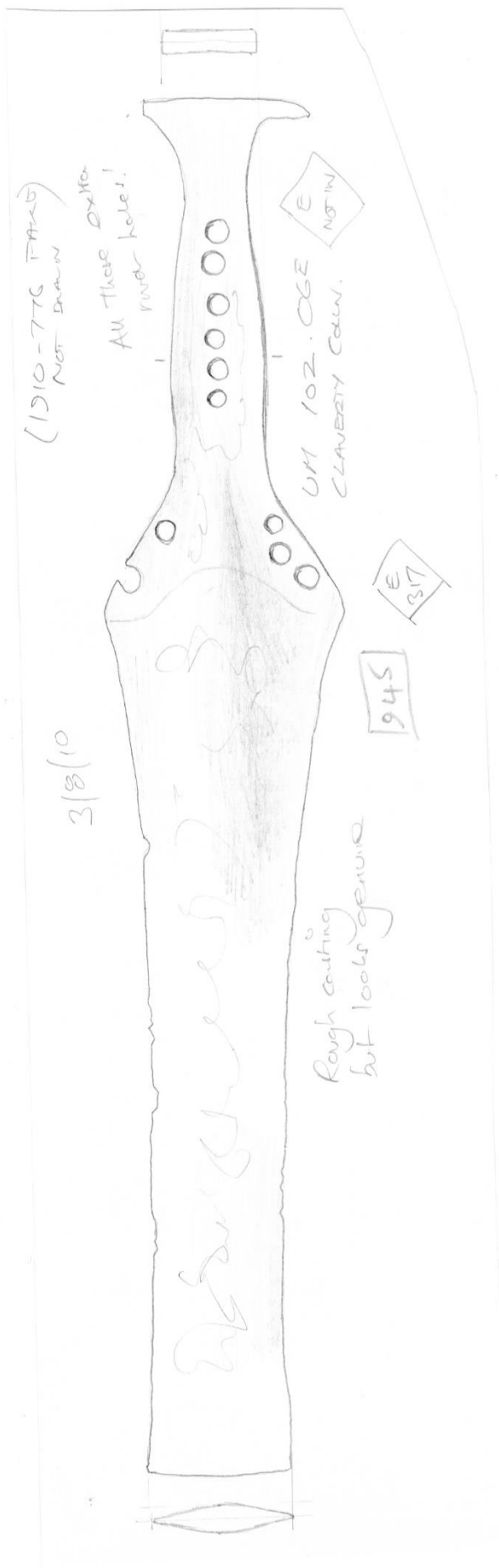




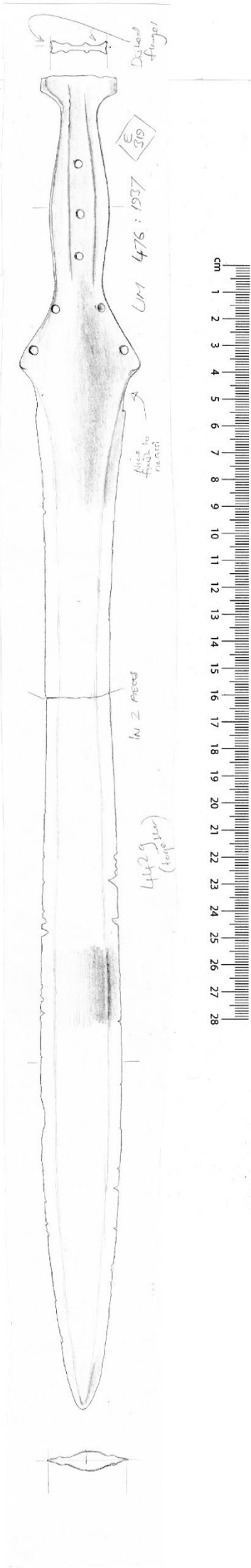
315



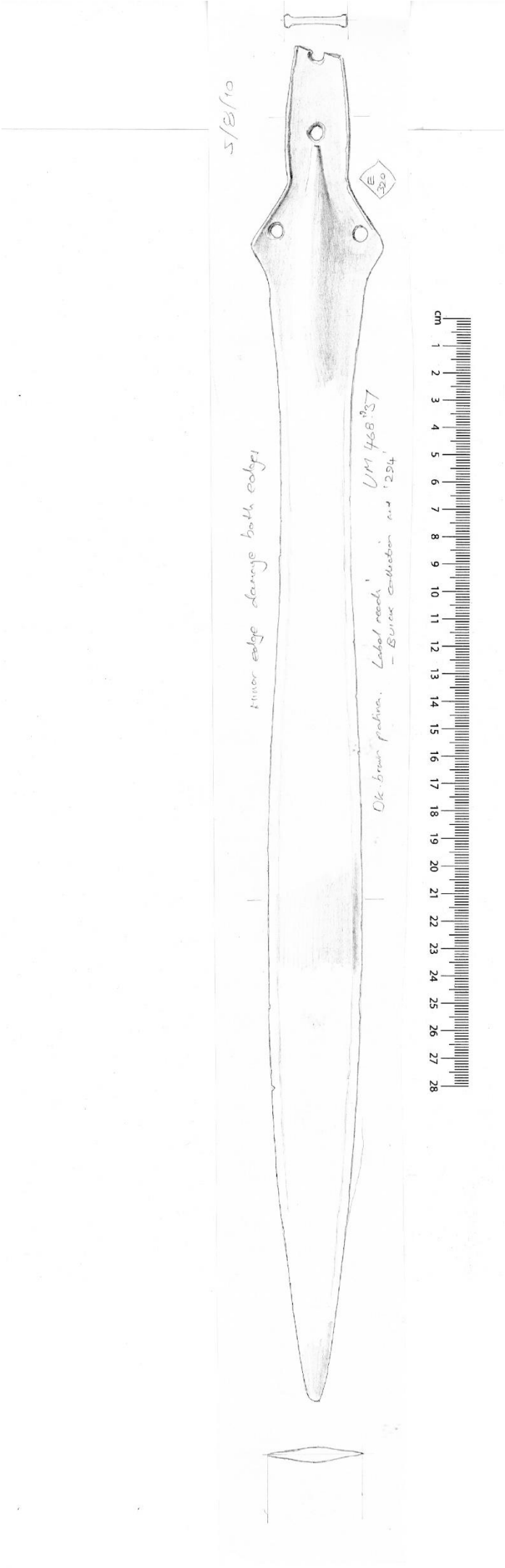
317



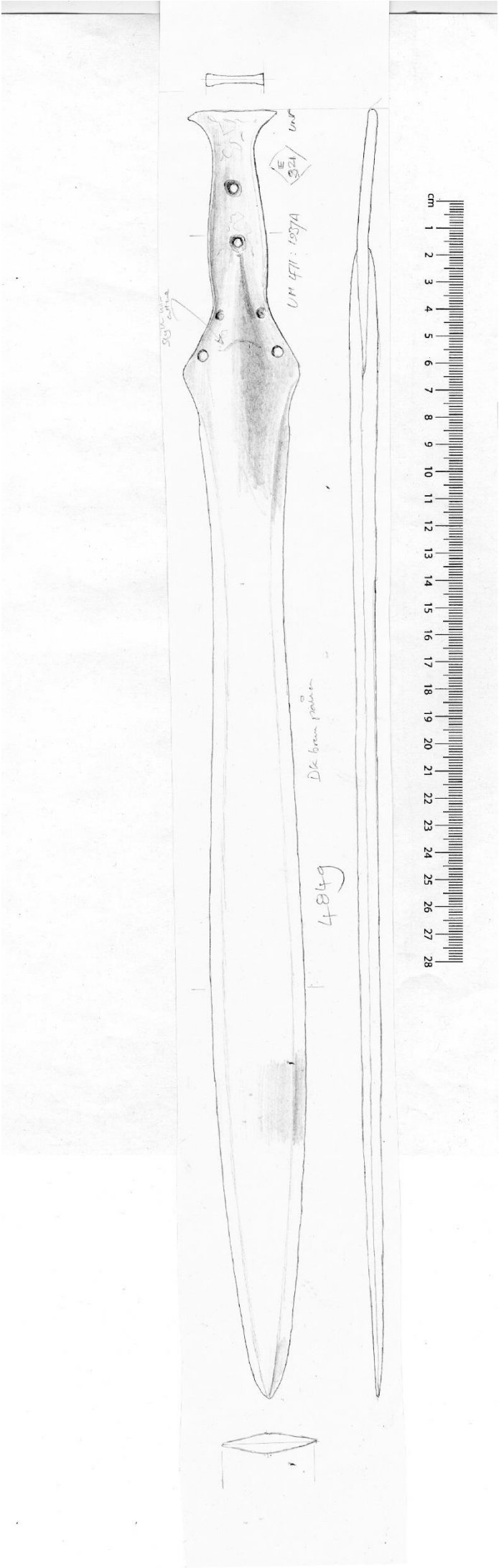
319



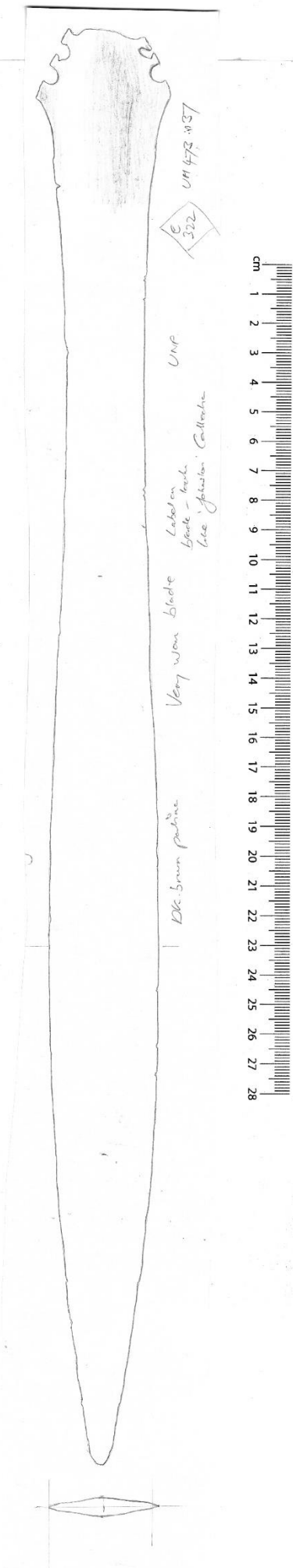
320



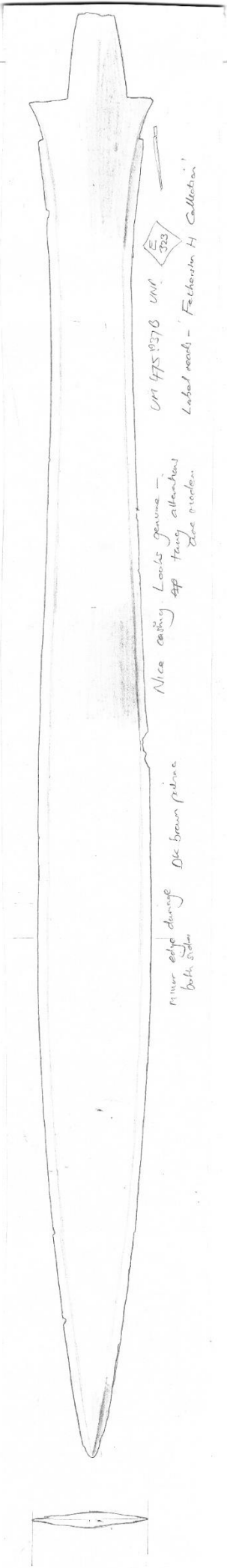
321



322



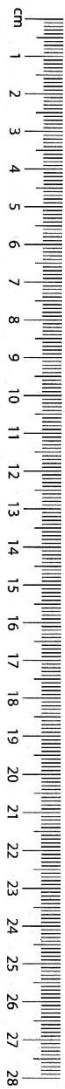
323

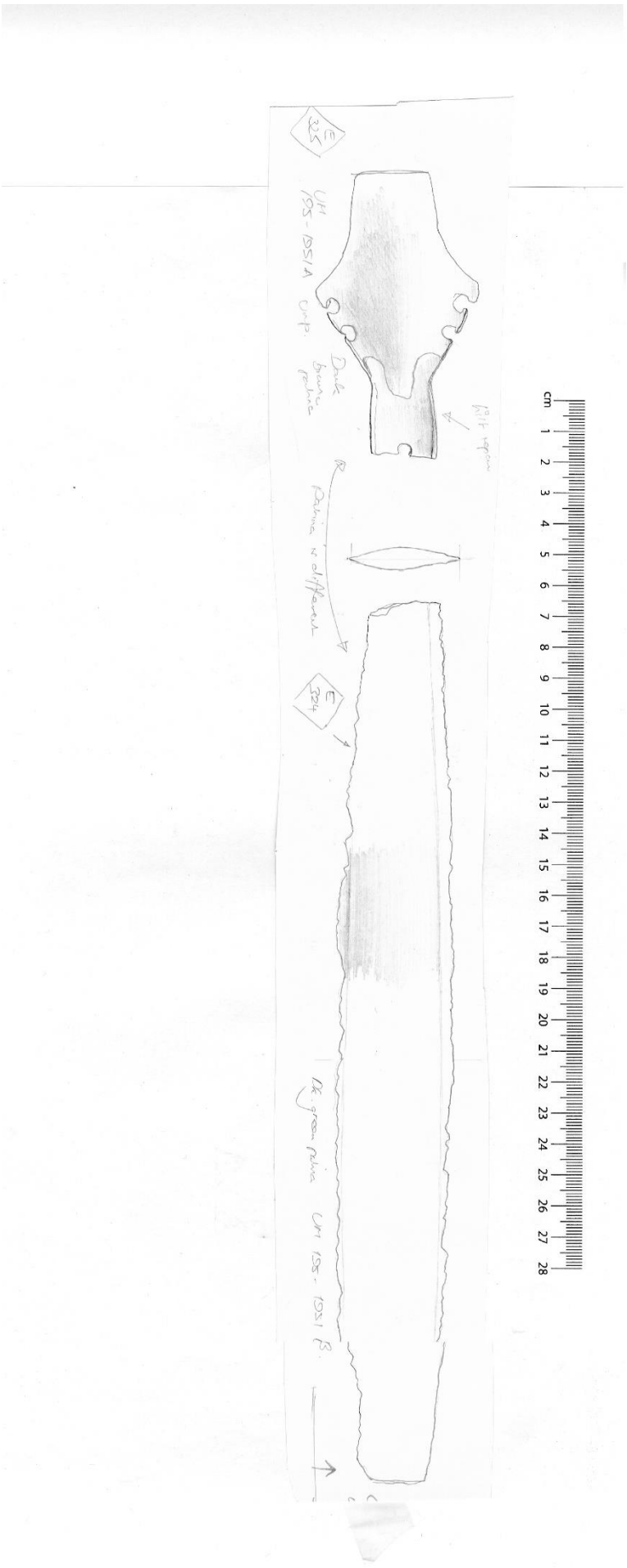


UMI 47510378 UMI
Label reads - "Fischer's H. Collection"

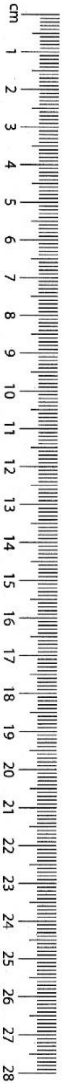
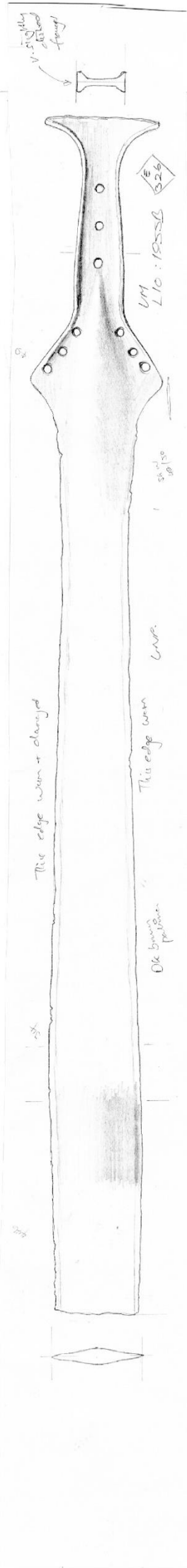
Nice casting. Looks genuine -
sp. tang allanhuus
The modern

Minor edge damage. Old brown pine.
Both sides



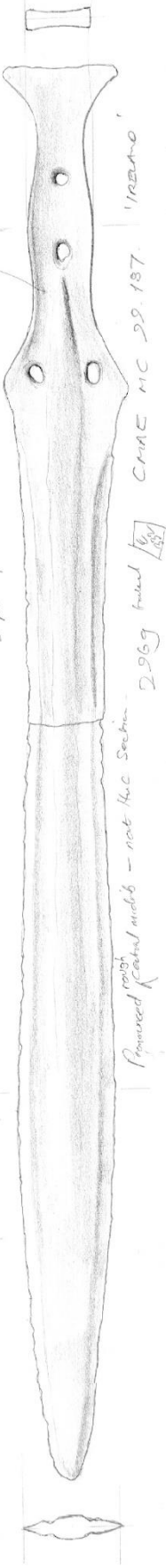


326



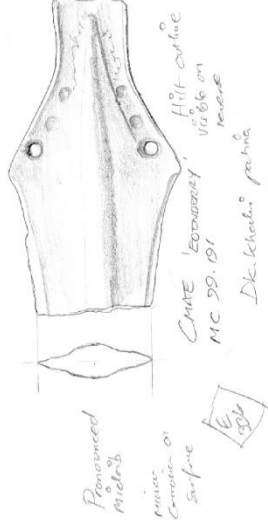
332
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337

Green pattern - primary lead on left
Unprimed side

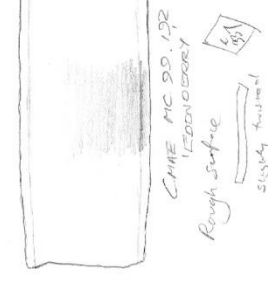


2.96g found [box] 187

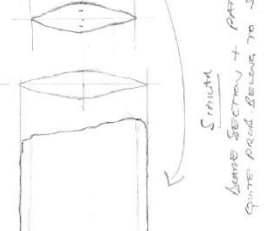
Primed metal mid-b - not the section



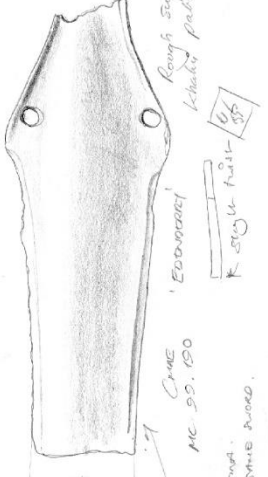
Primed metal mid-b
Green on surface
Dk. Khaki pattern



Rough surface
Slightly textured



Smooth
Green section + pattern
Quite good looking to same road

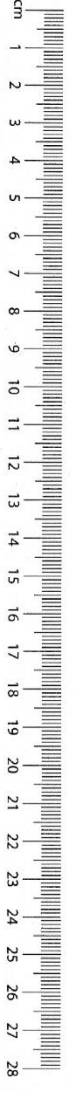


Rough surface
Khaki pattern
Slightly textured



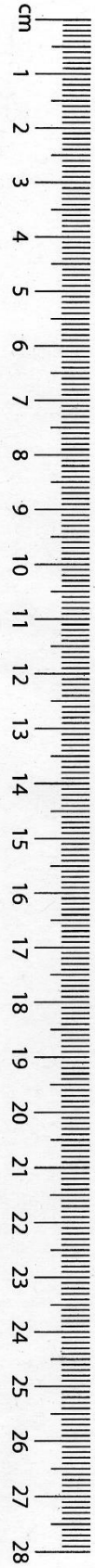
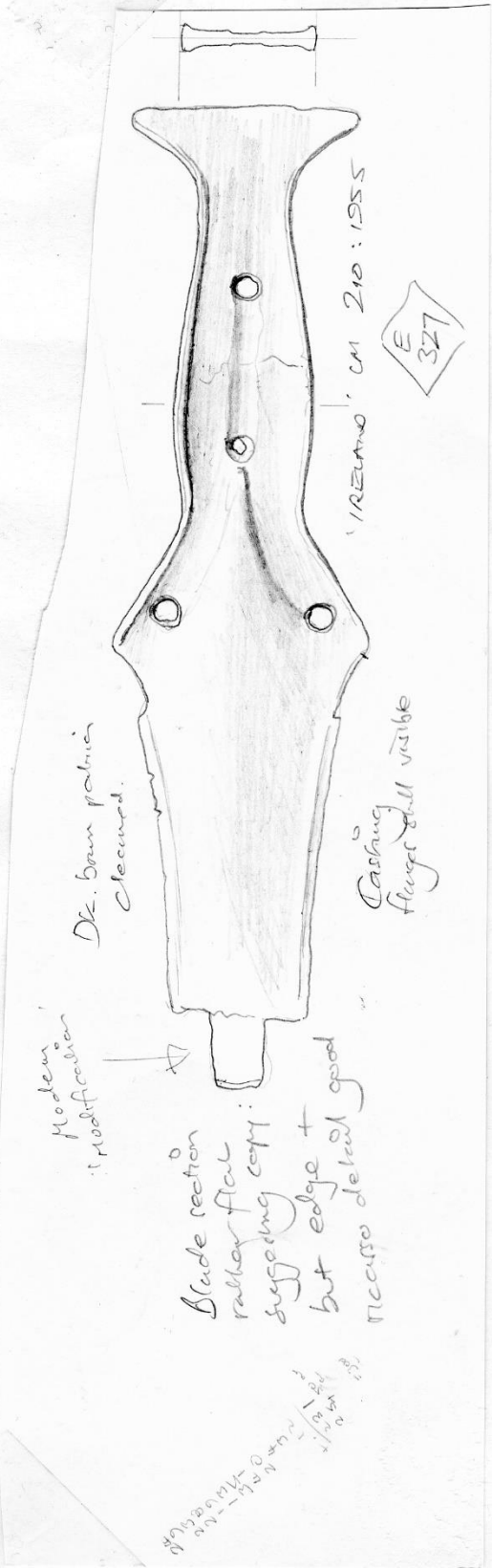
Dark brown pattern
Grey surface, slightly pitted & naked
Scratch marks on both surfaces

Shade section
- clear hole

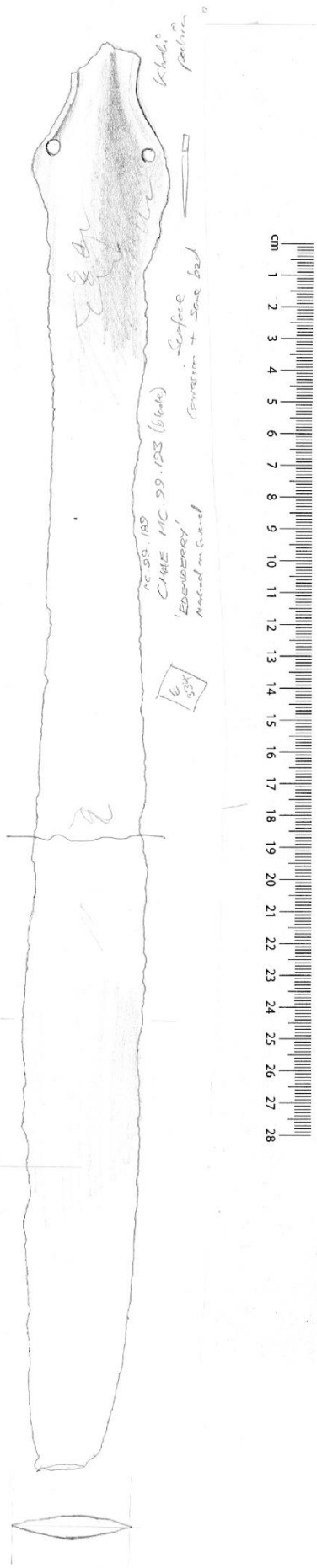


7/21/13

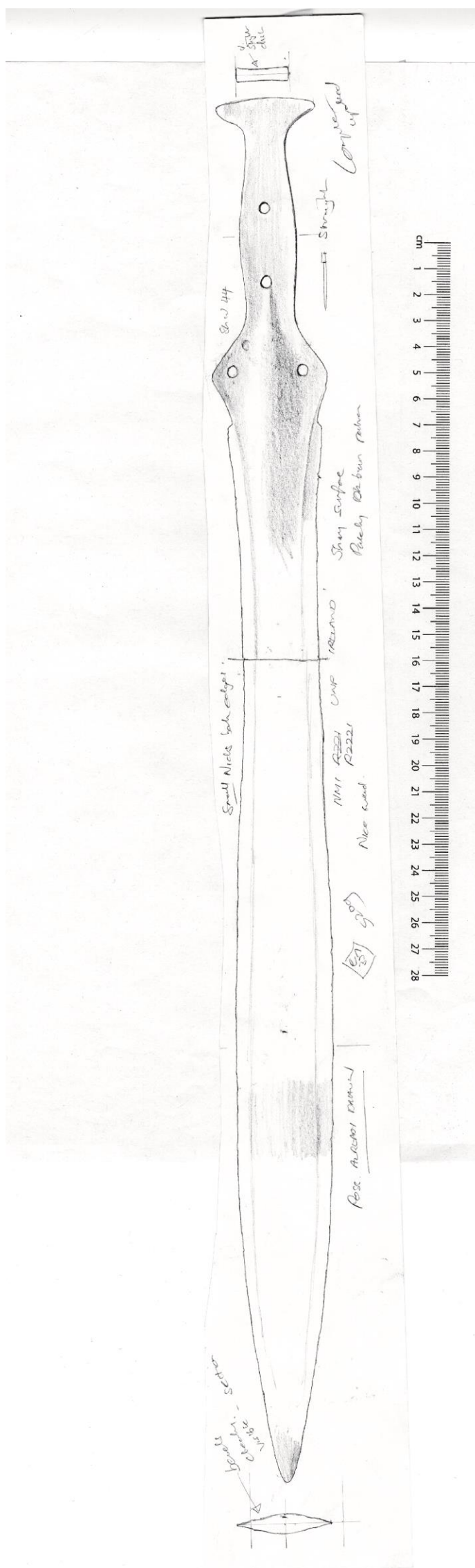
327



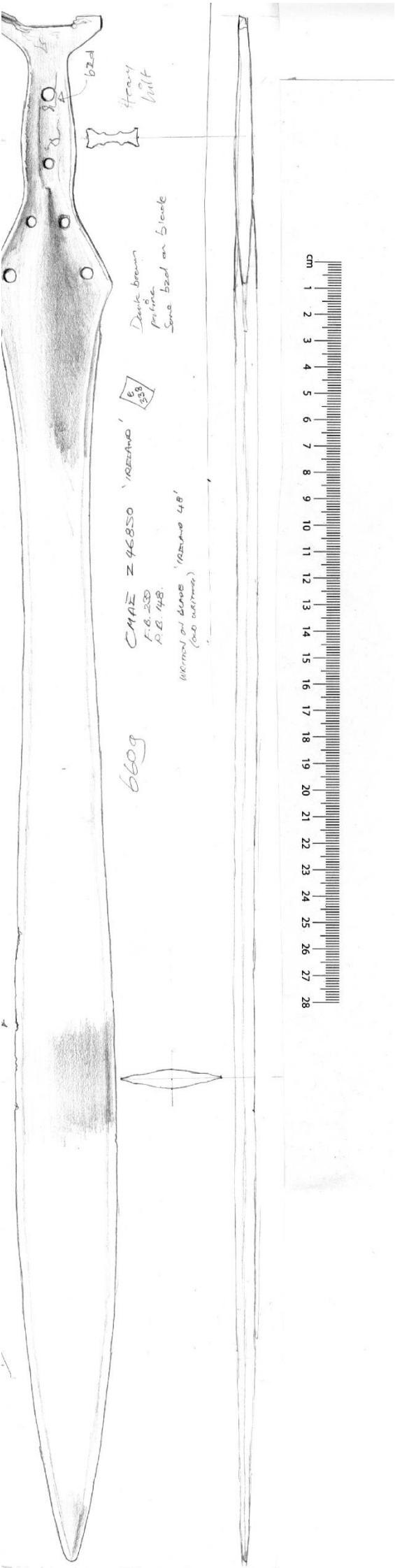
334

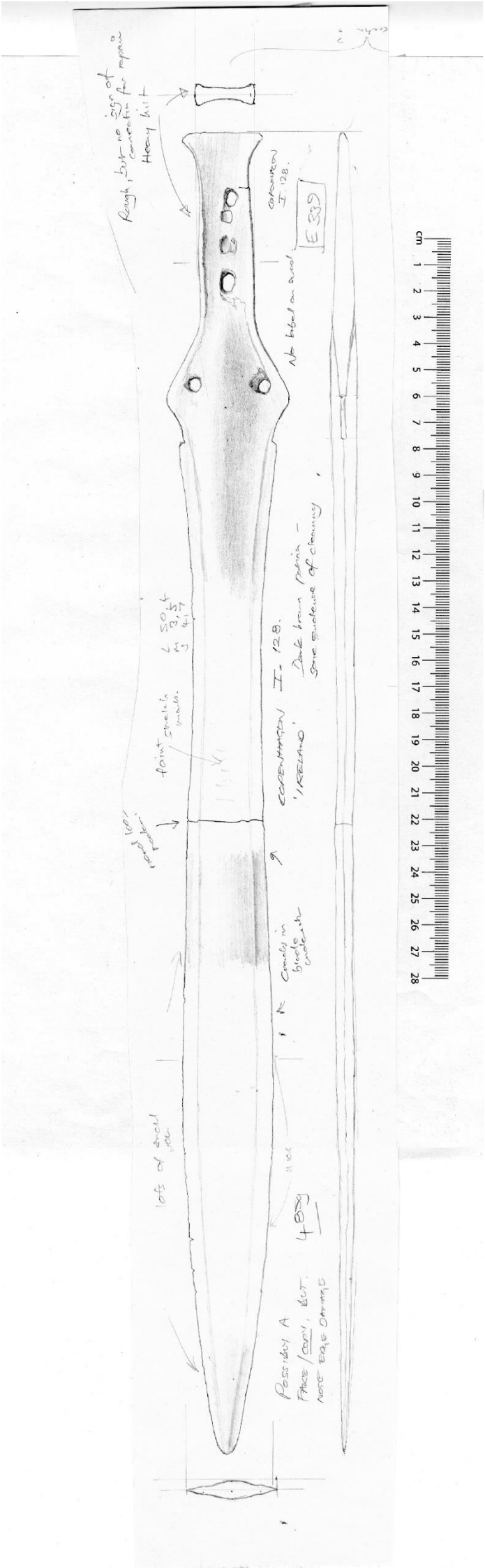


337

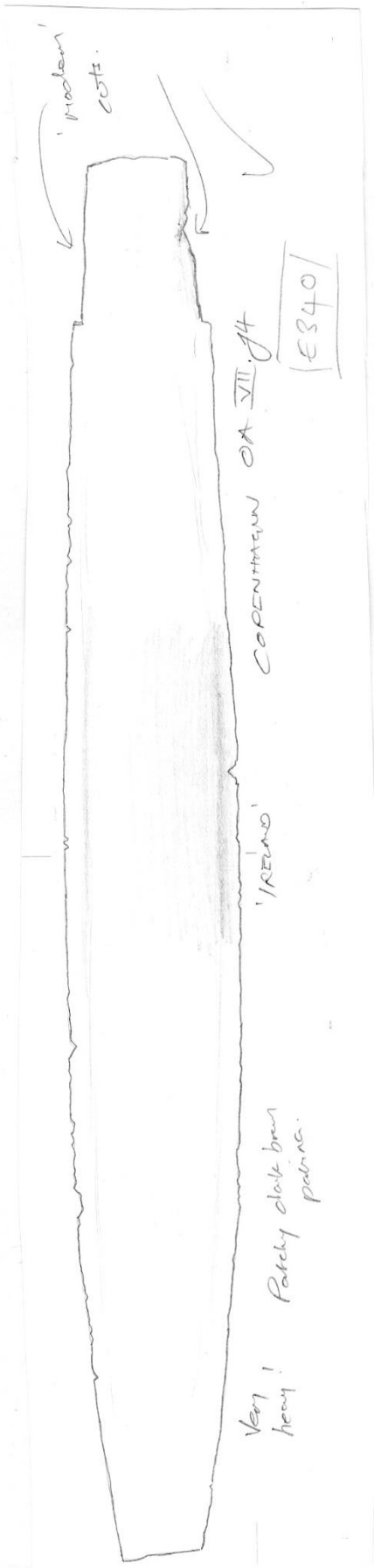


338

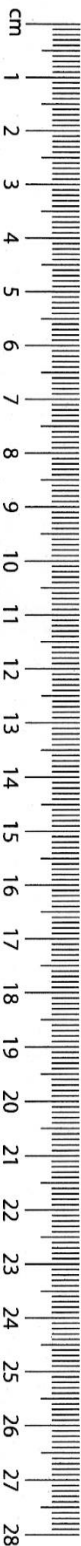
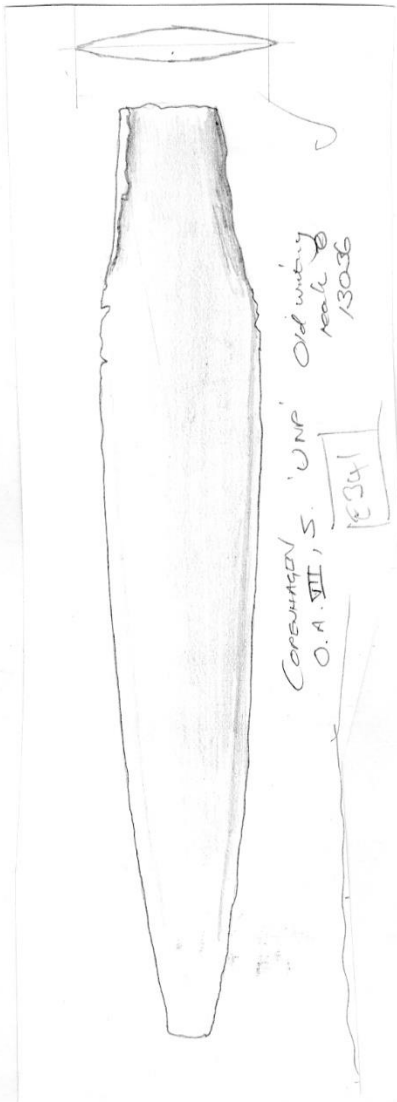




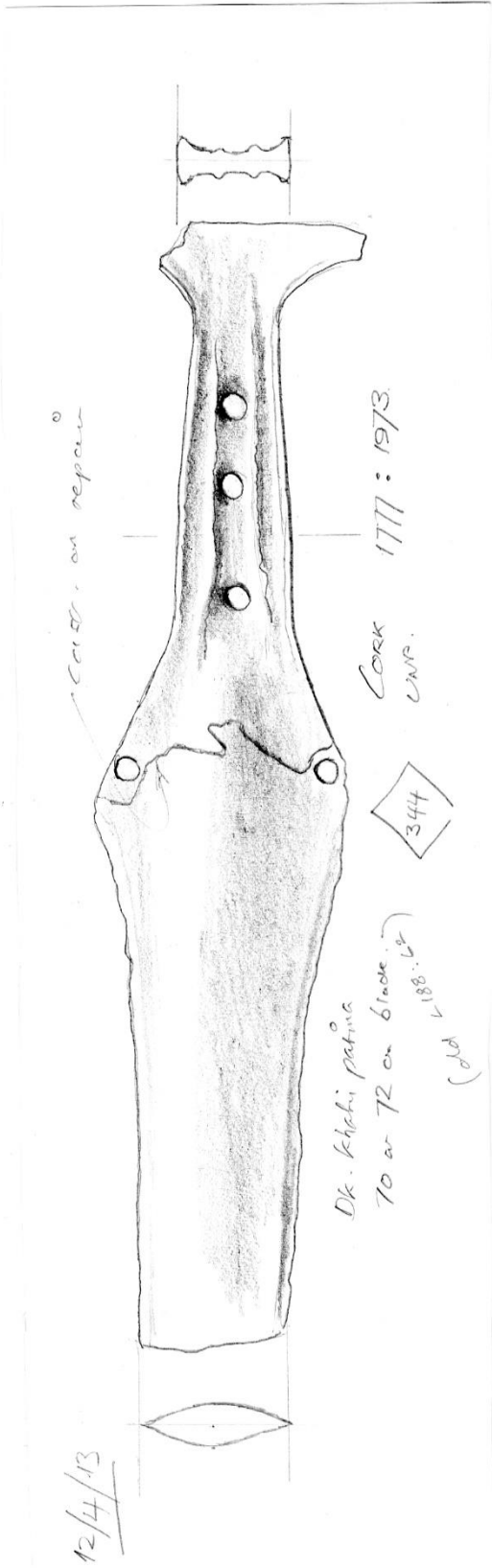
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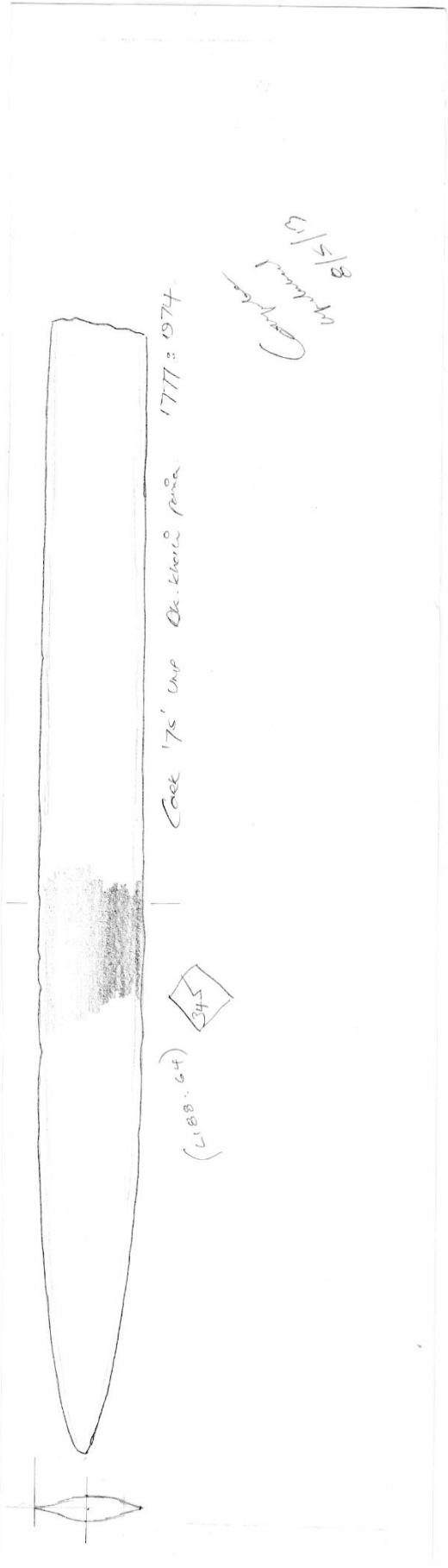
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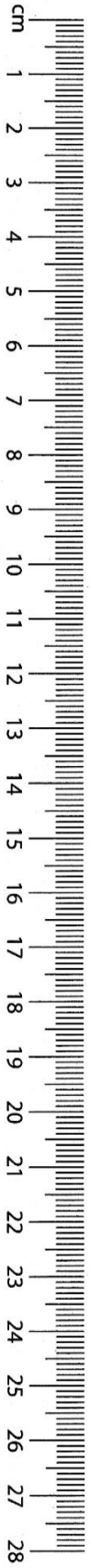
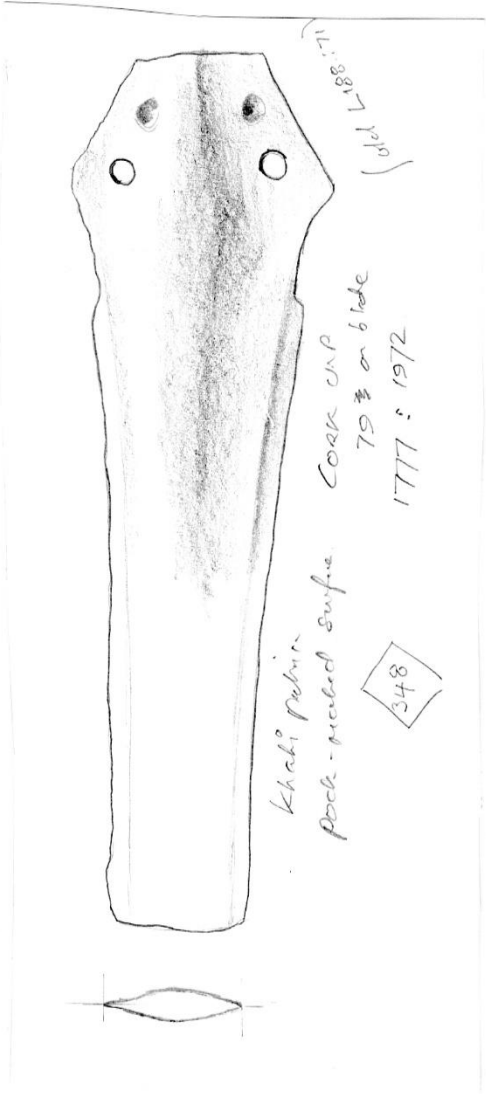


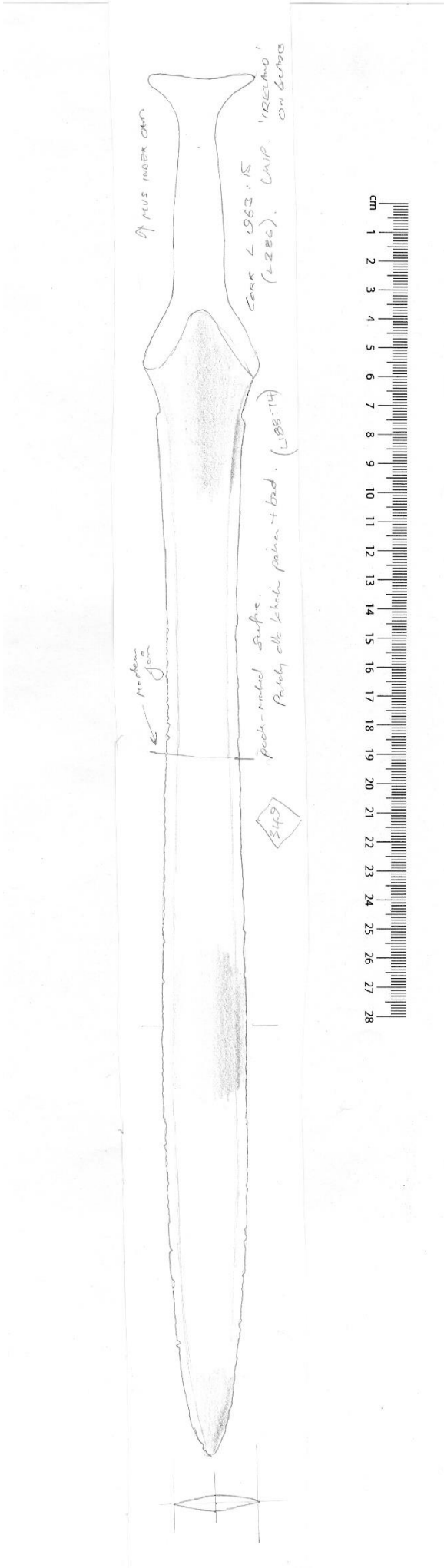
Cock '75' Univ Ok. Univ para 1777: 1974

Completed
8/5/17

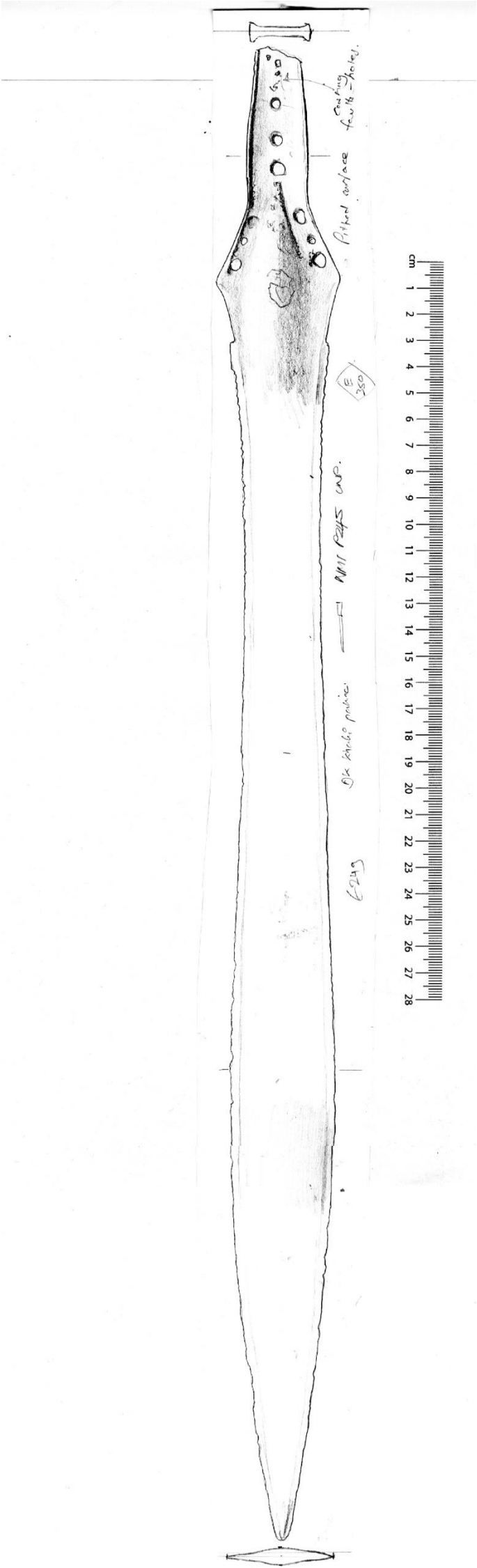


348

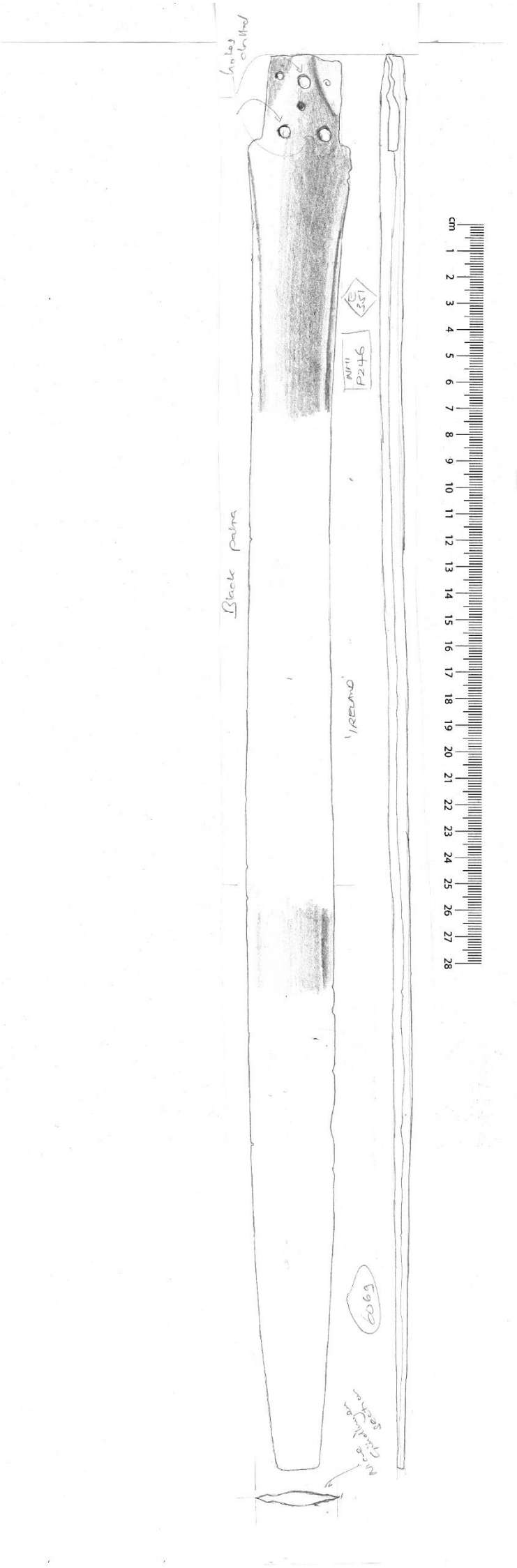


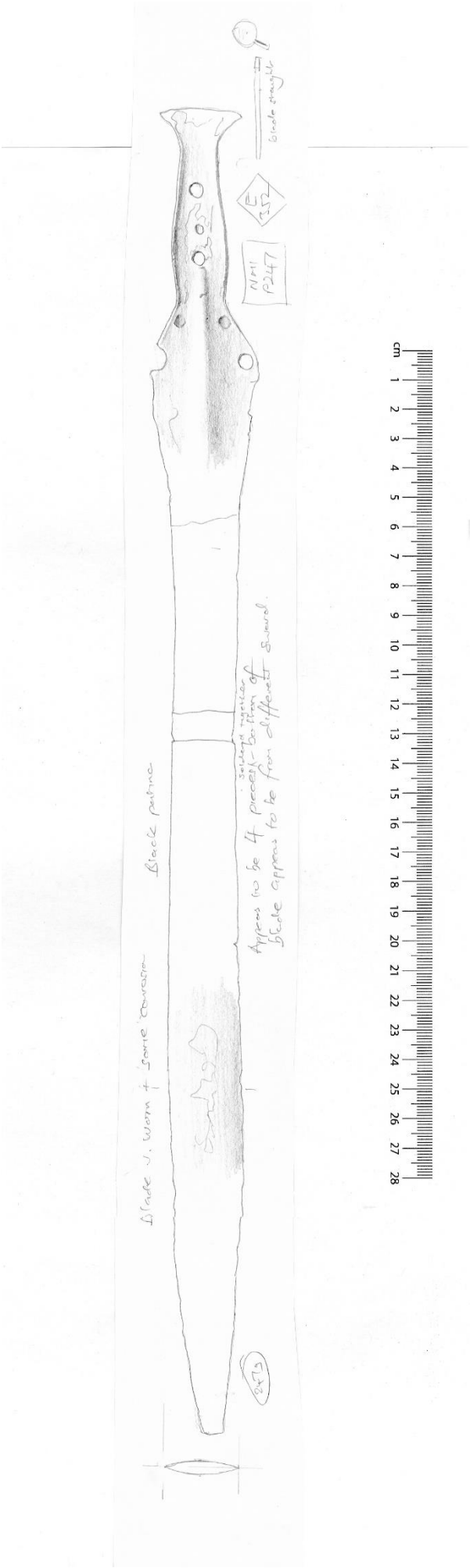


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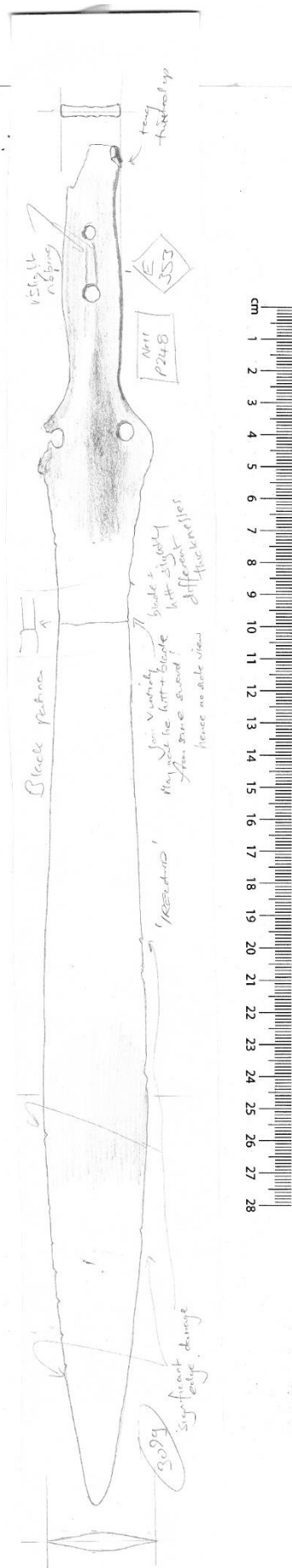


351

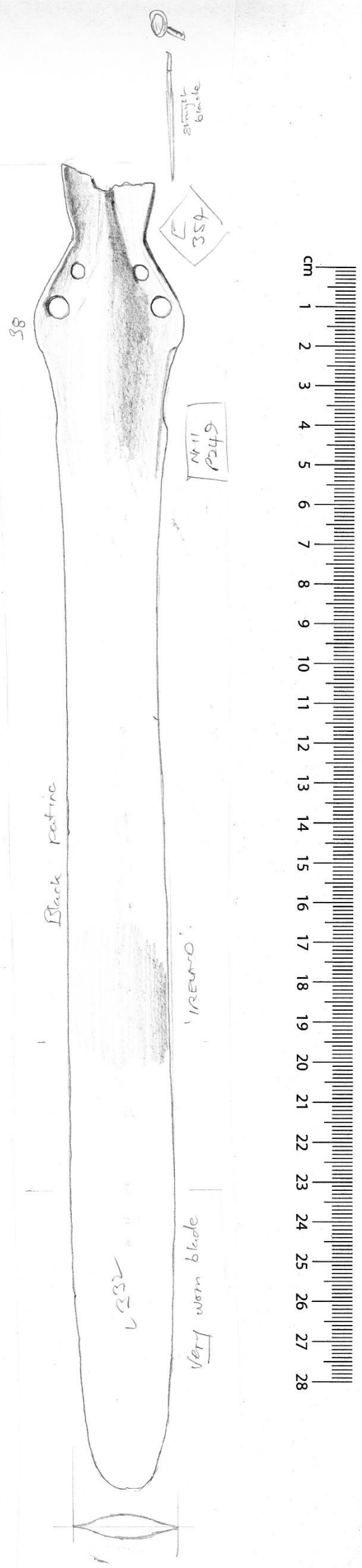




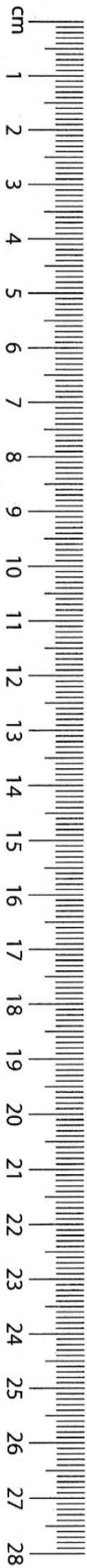
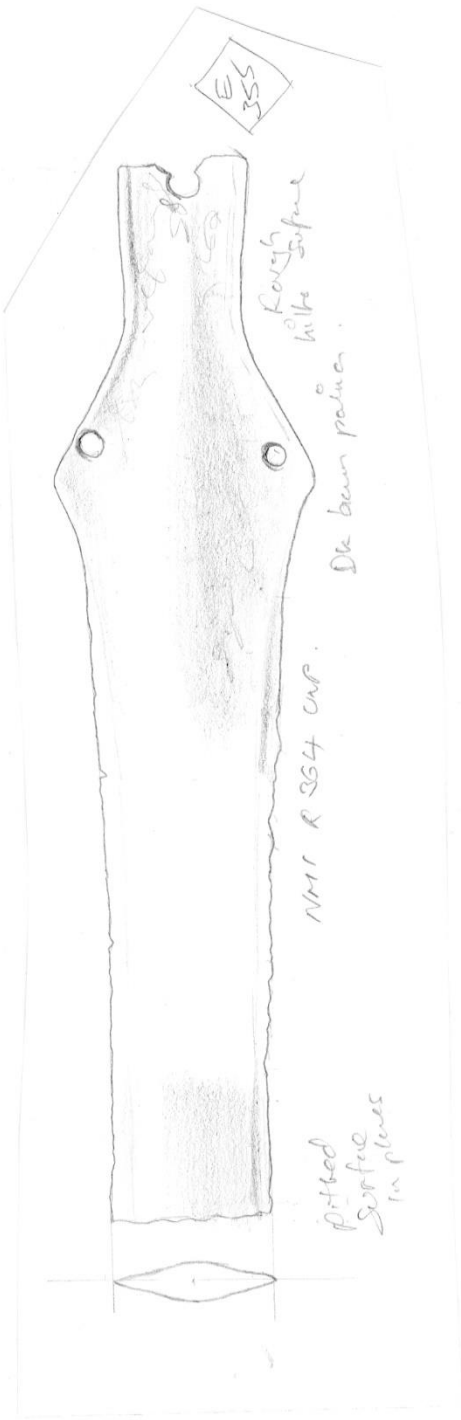
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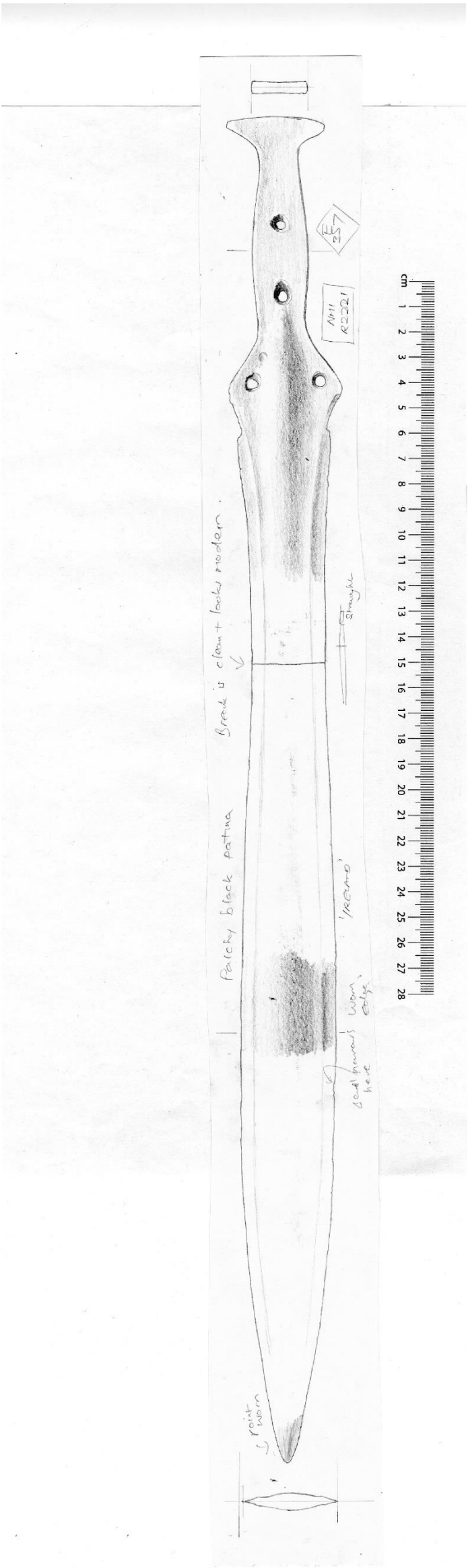
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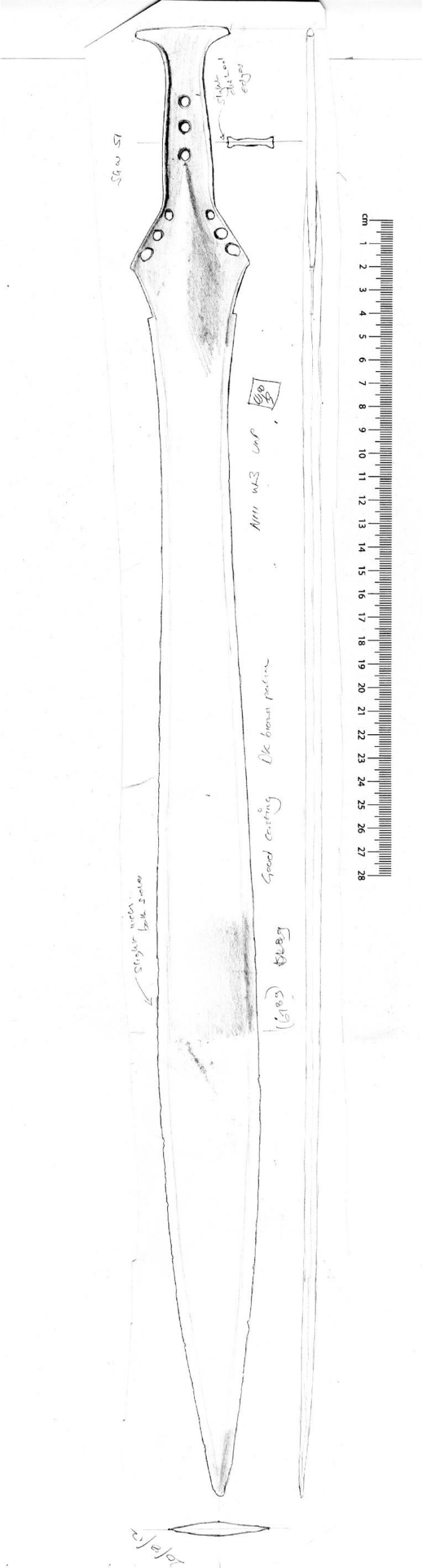
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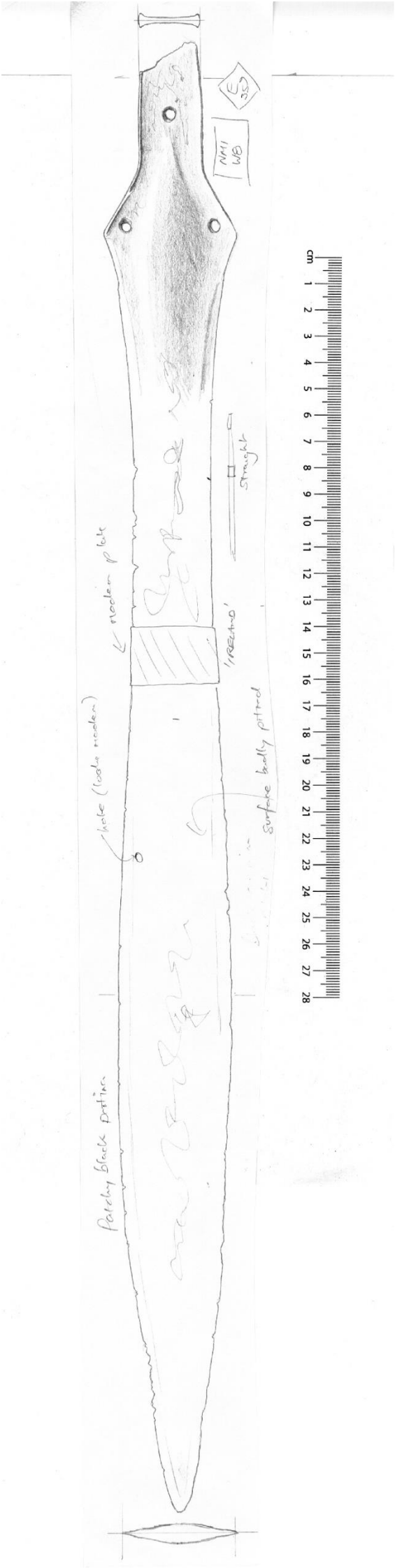
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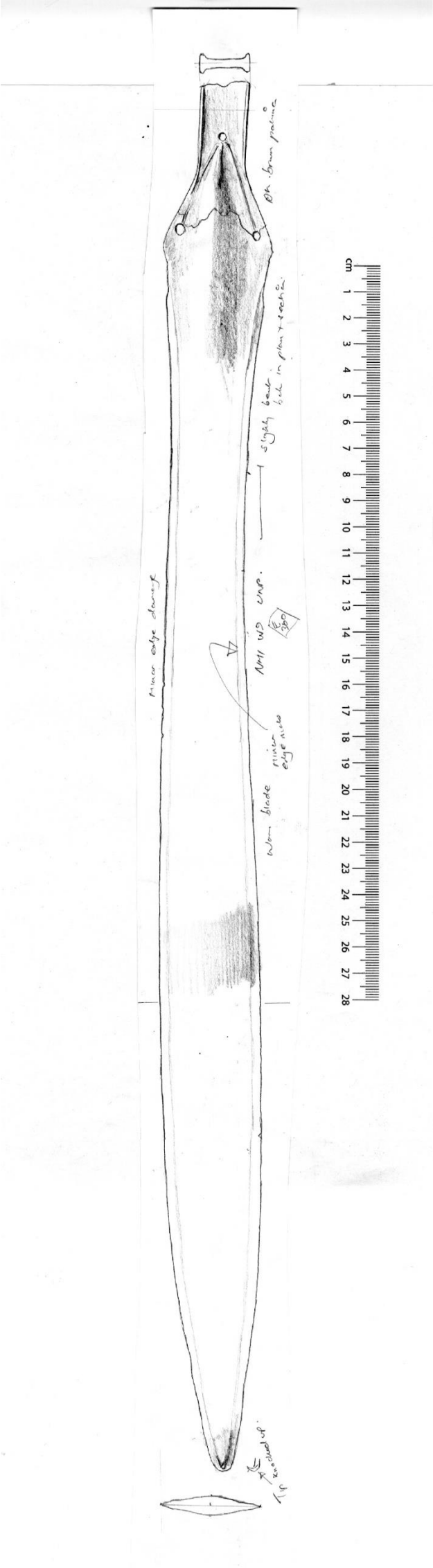


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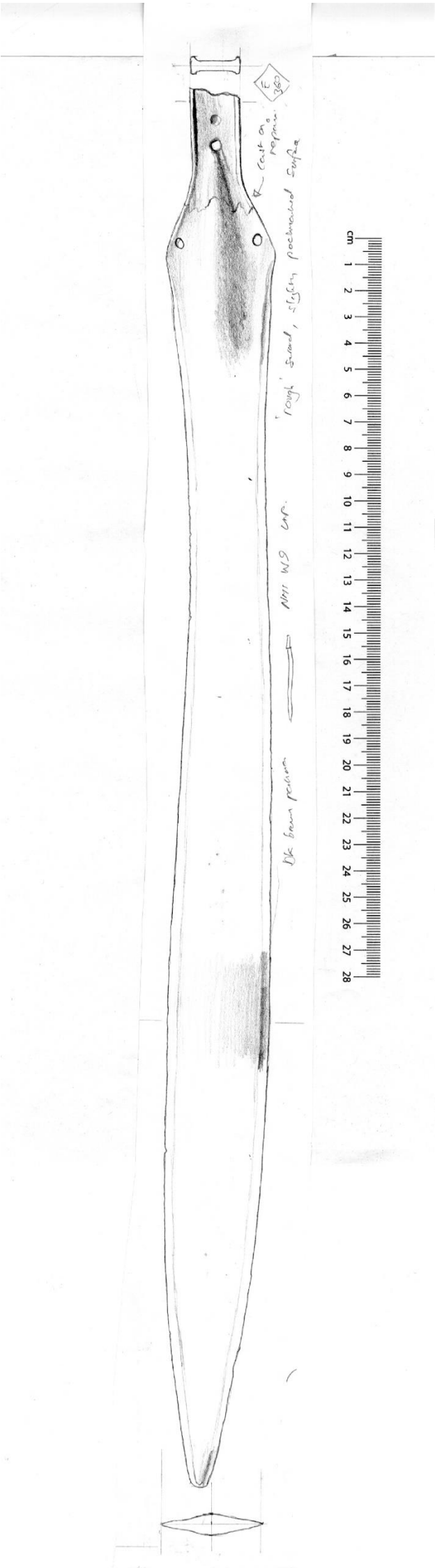


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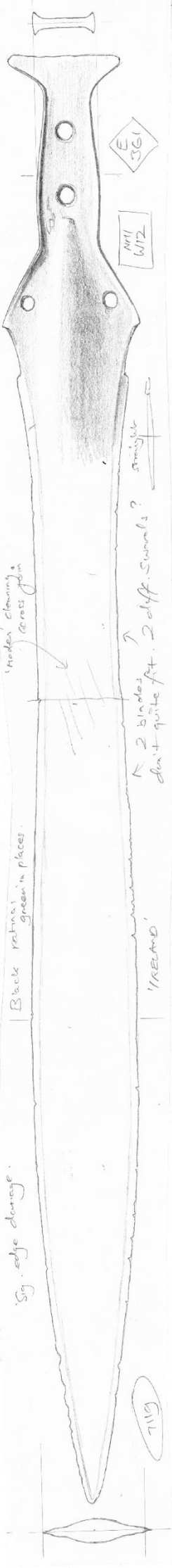




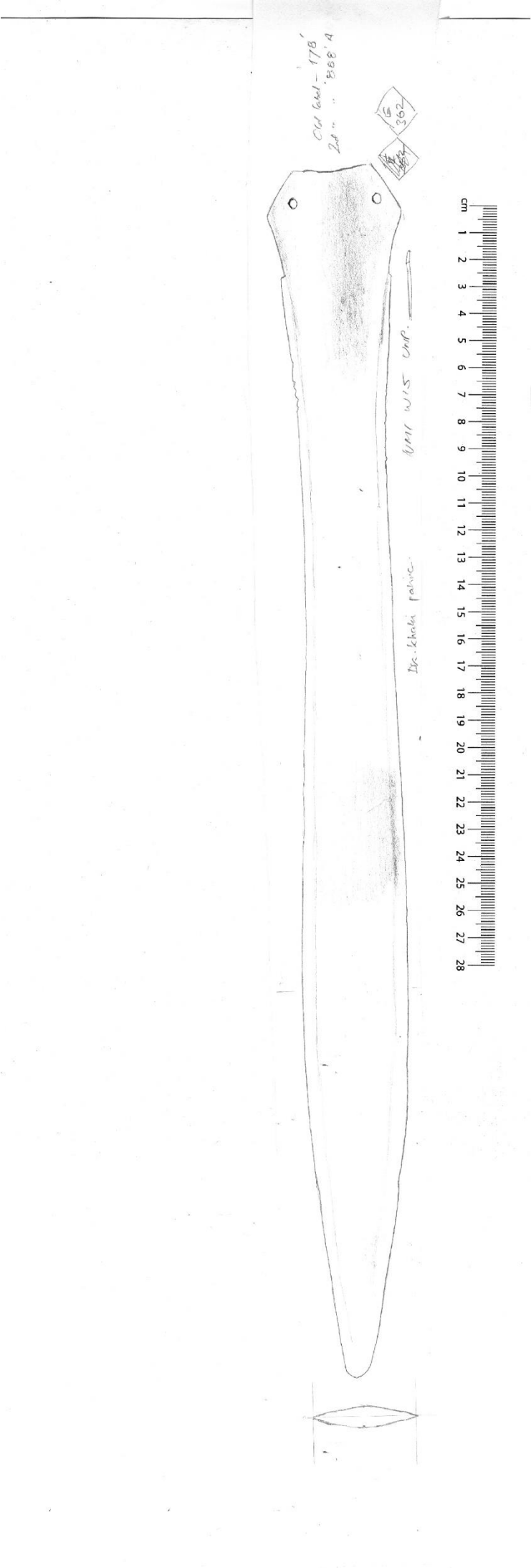
360 (2)



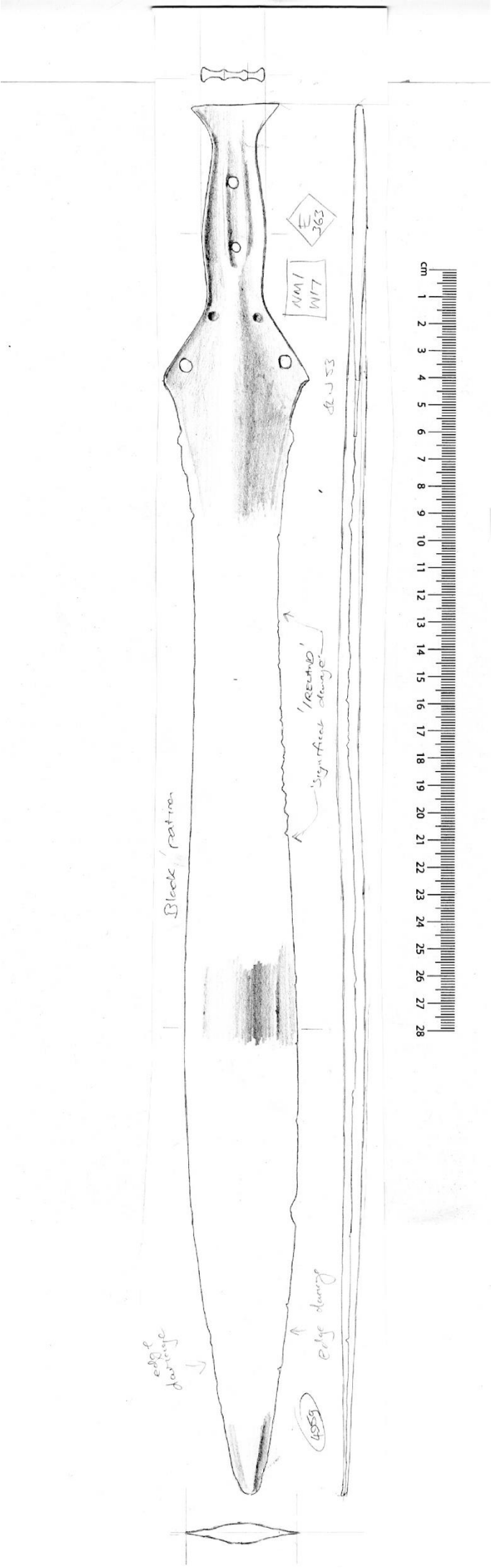
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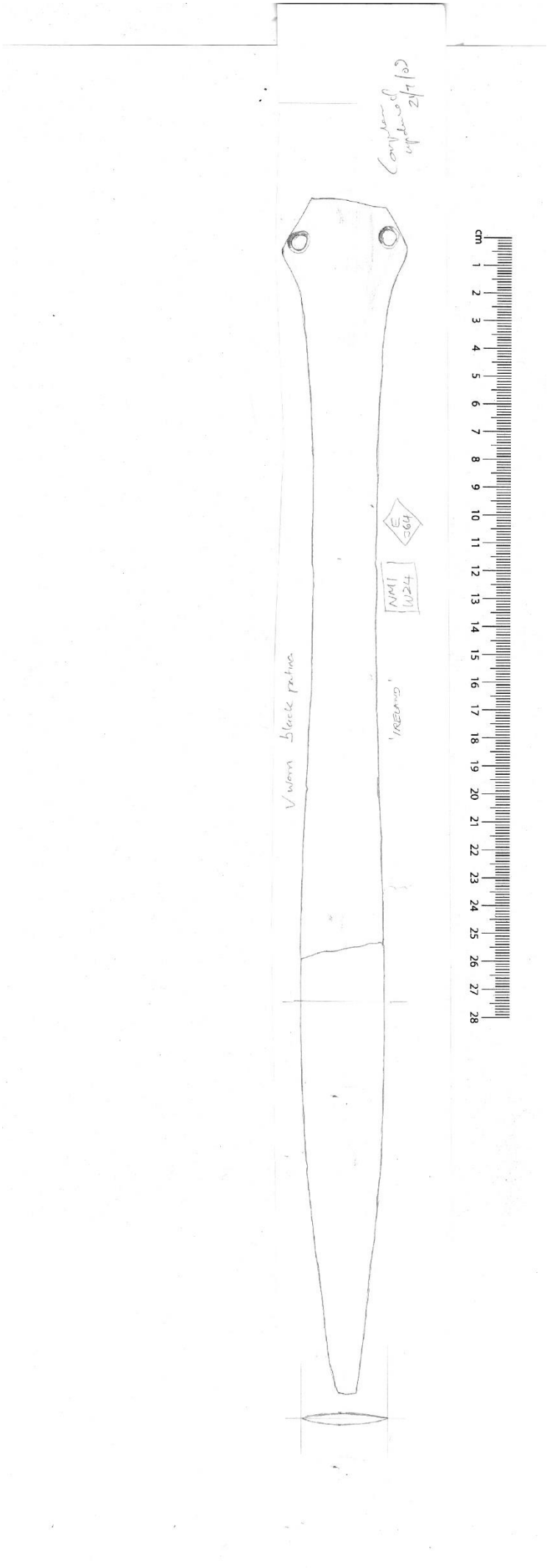


362

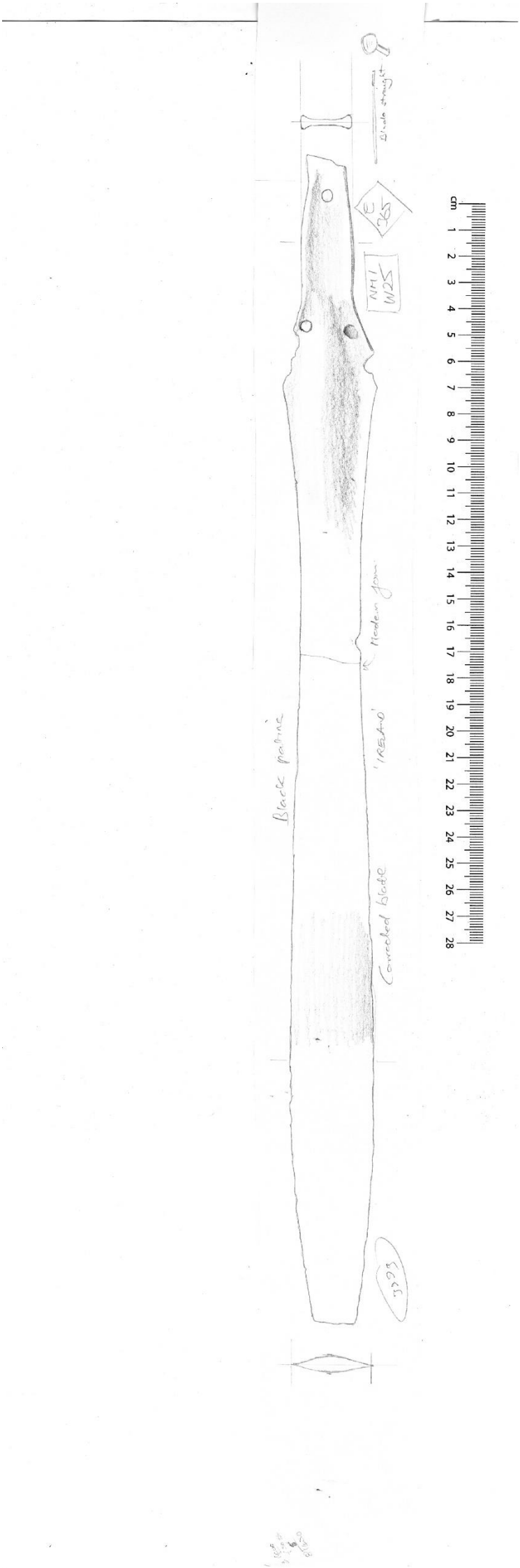


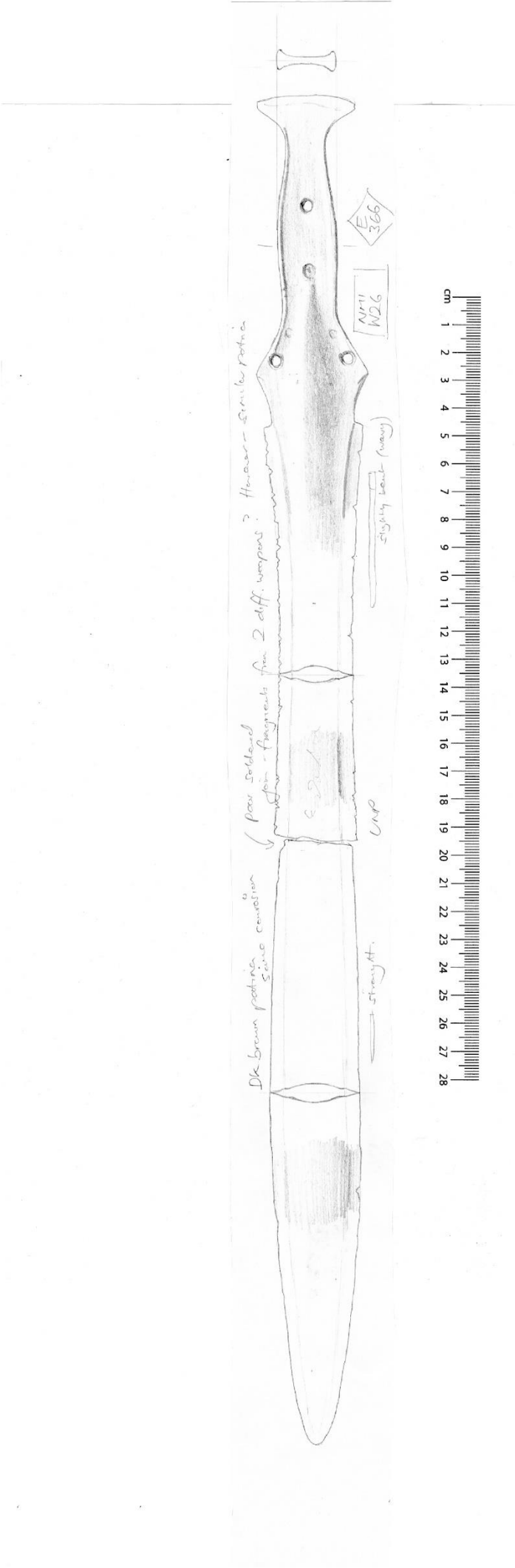
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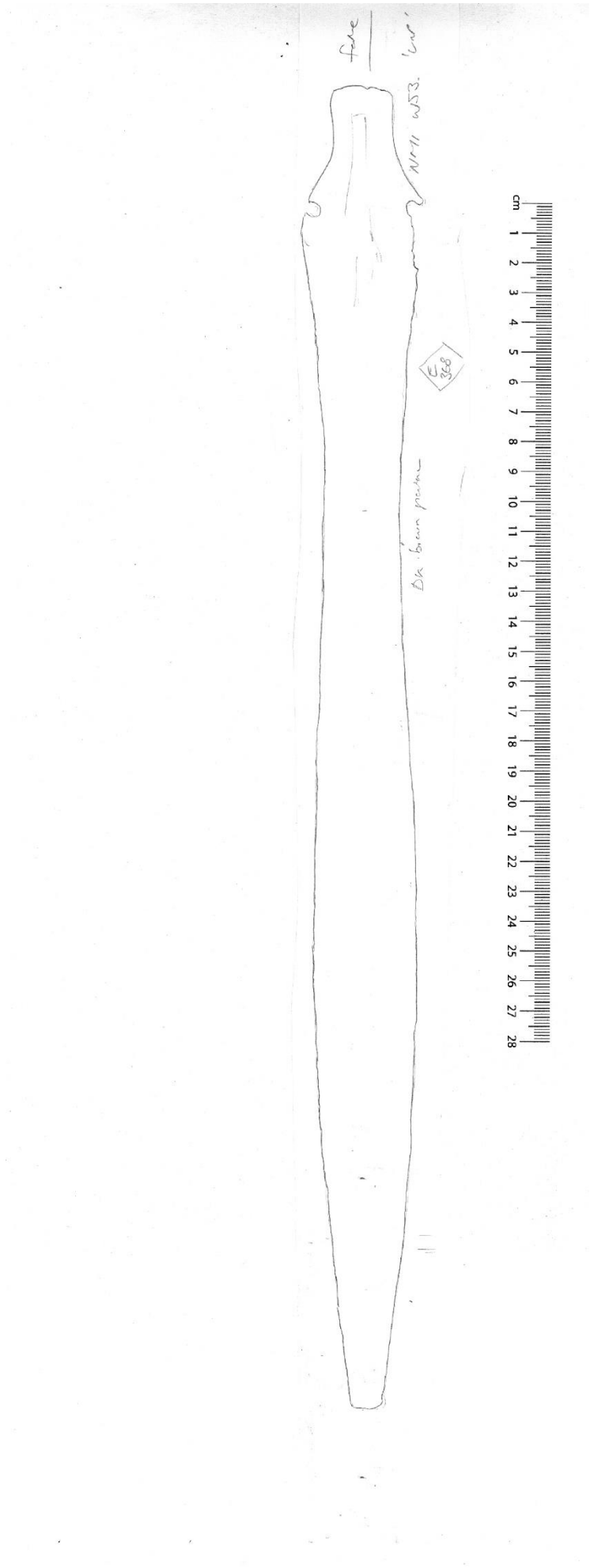




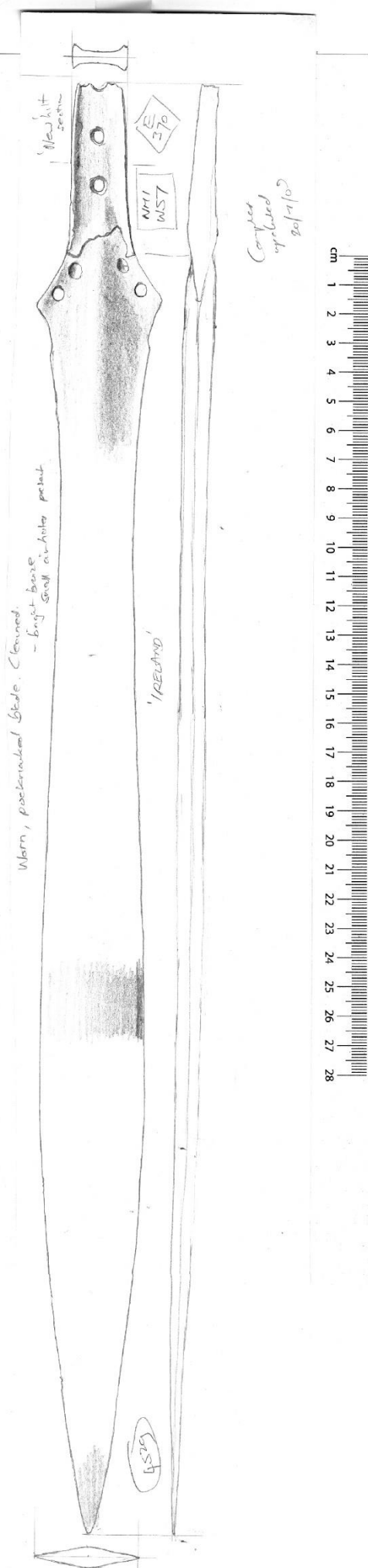
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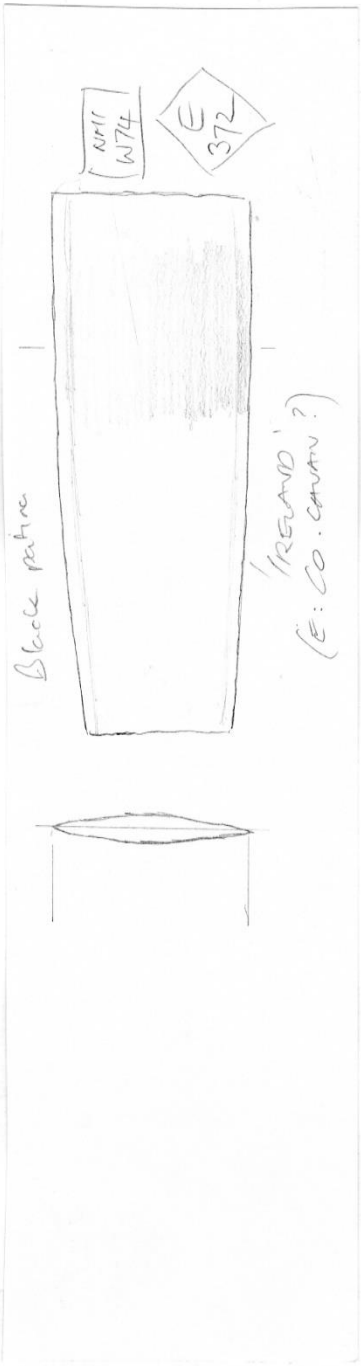
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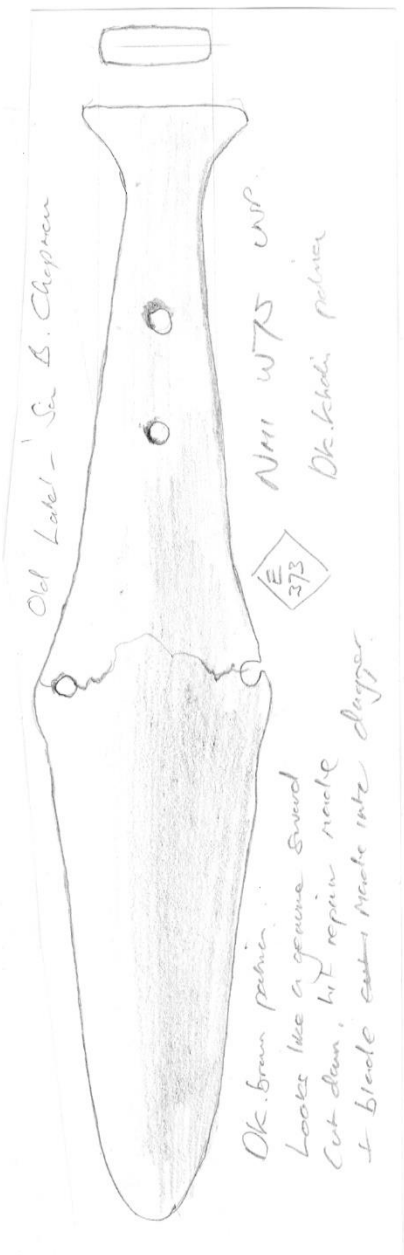


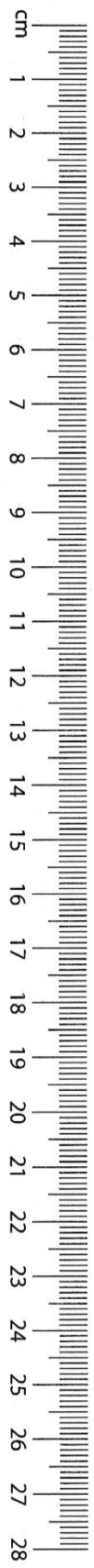
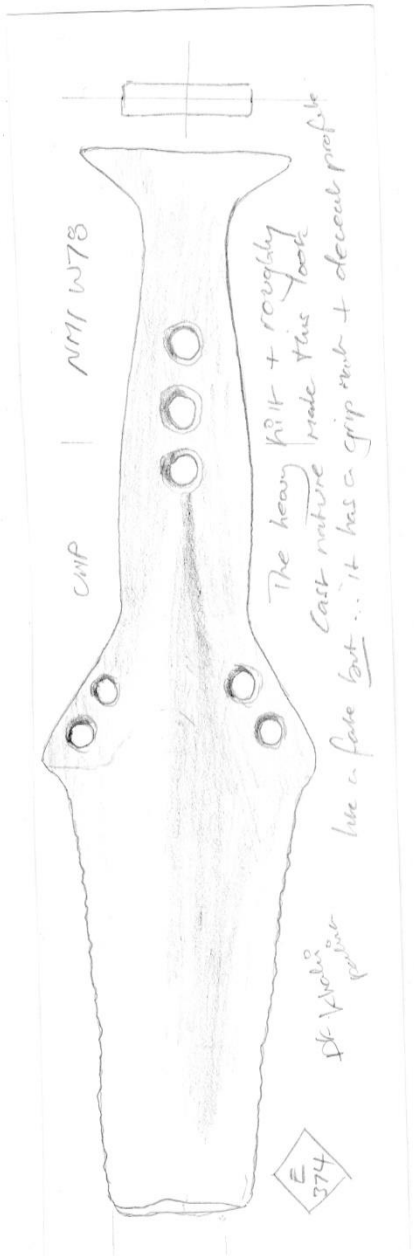
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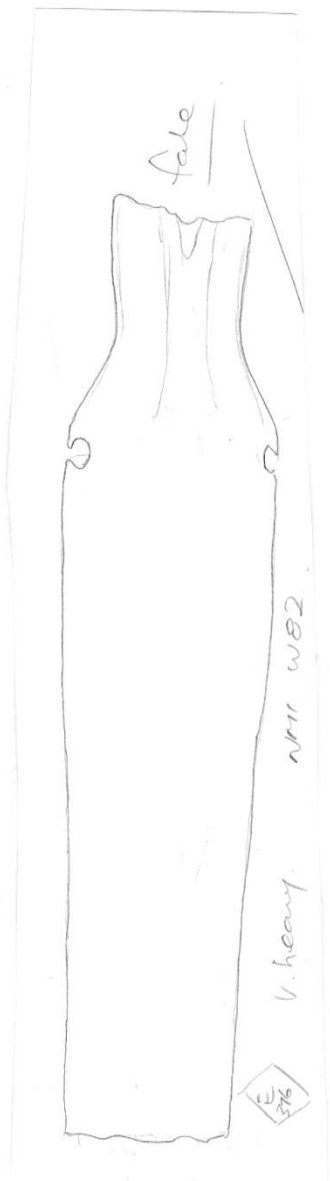




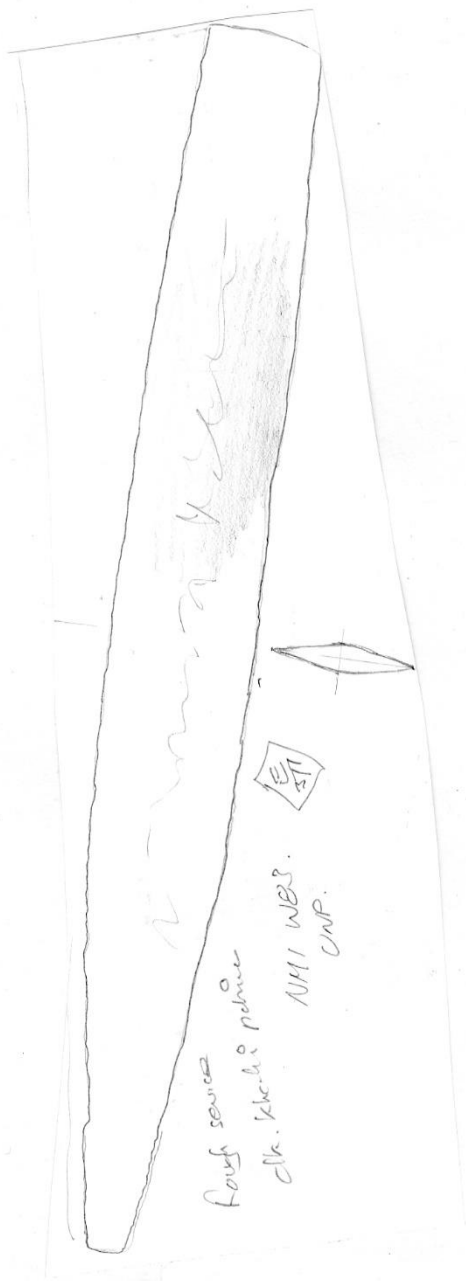
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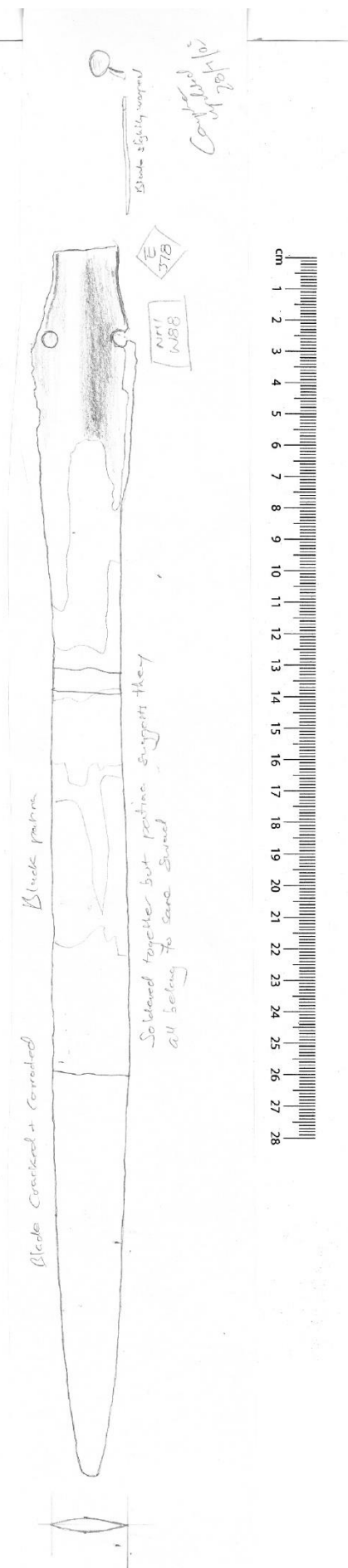
376



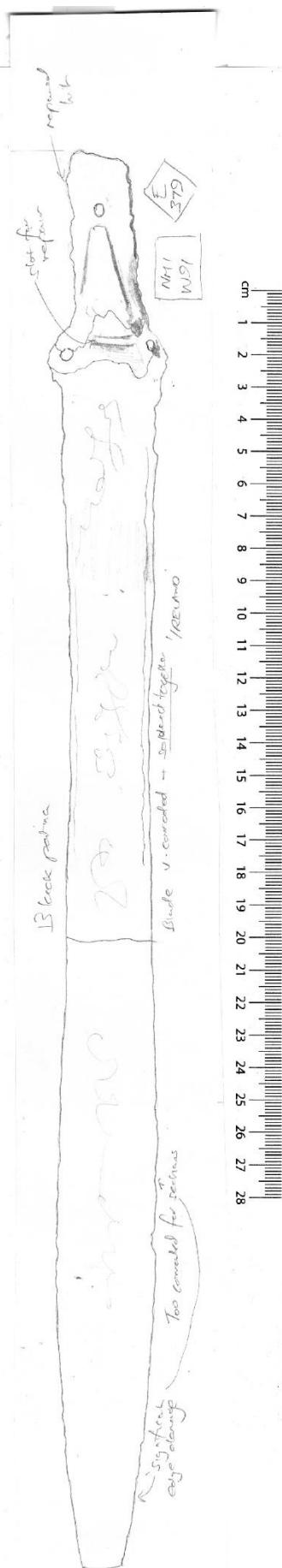
377

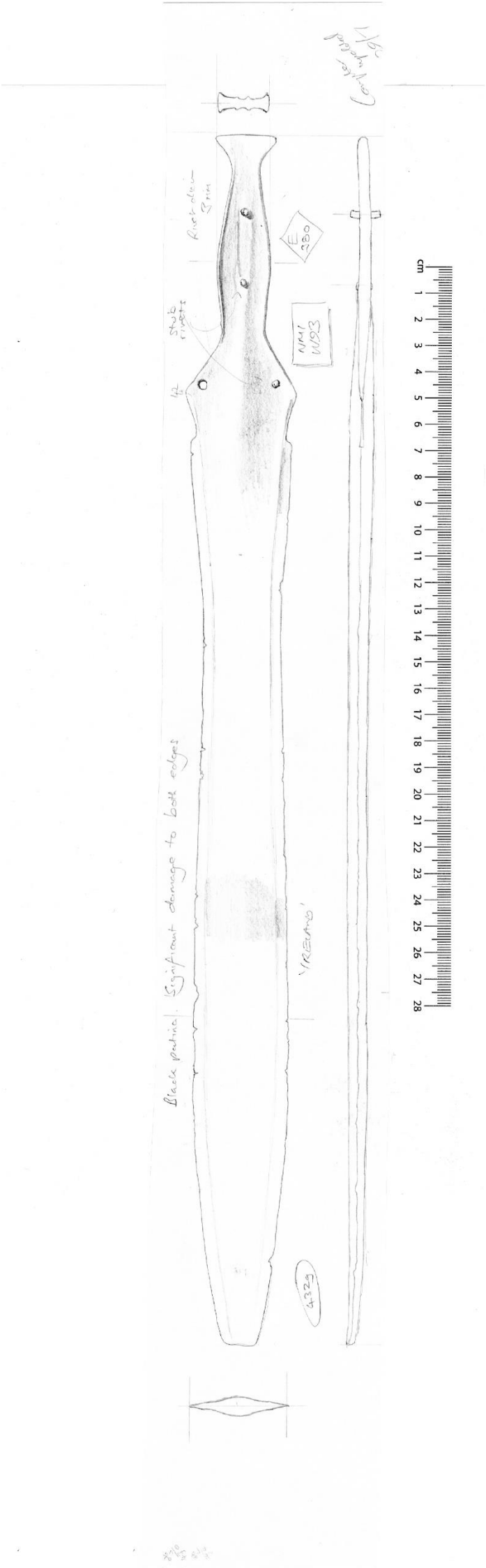


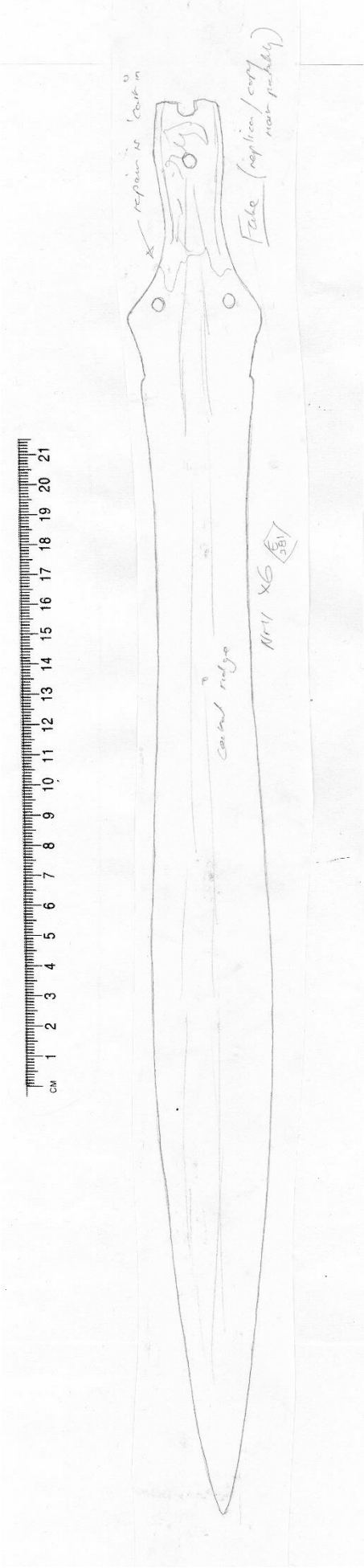
378



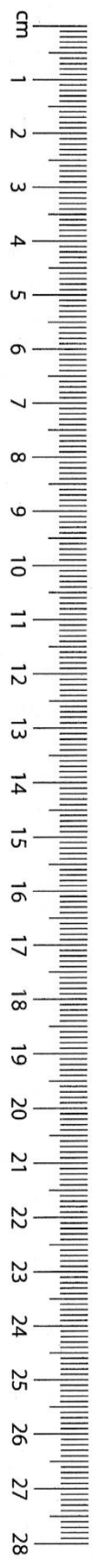
379



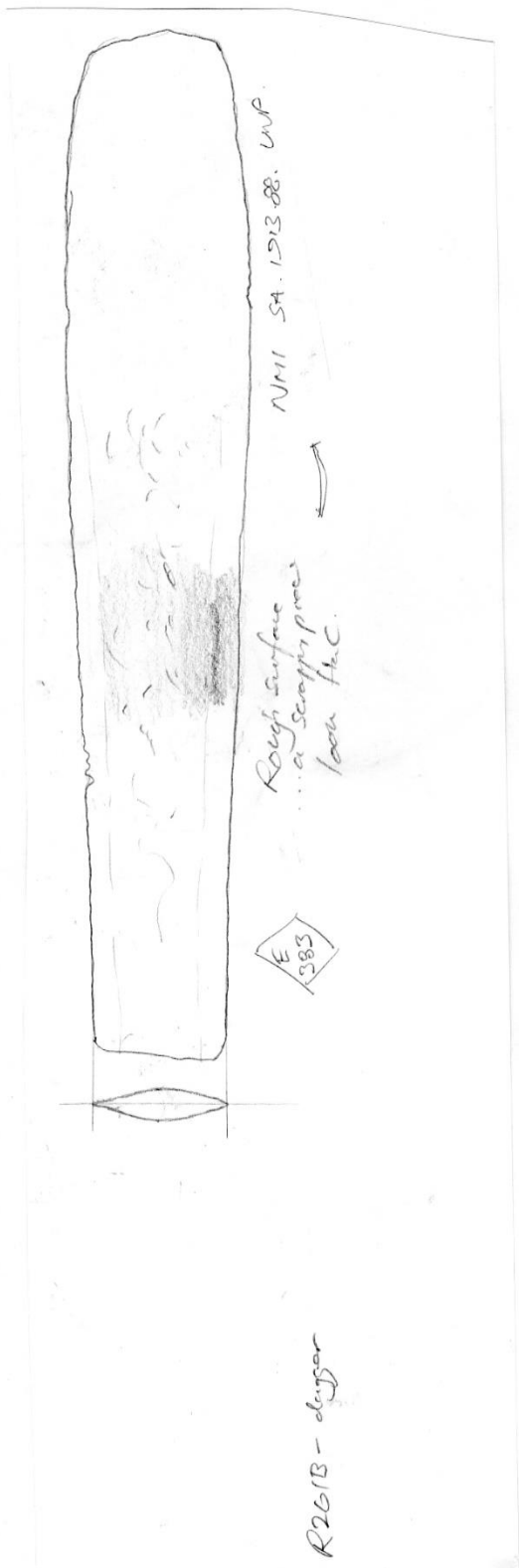




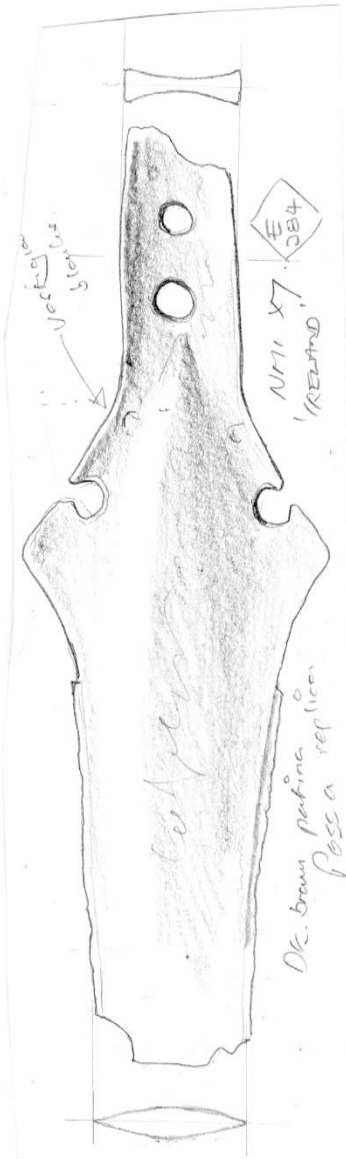
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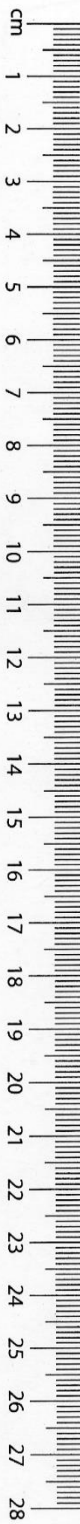
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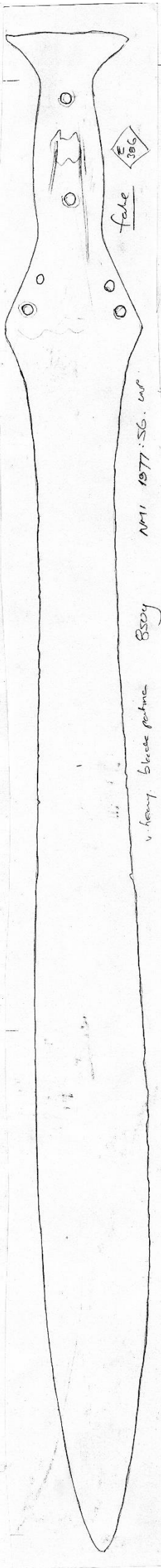
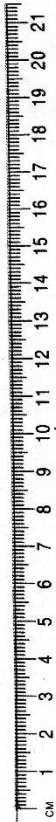
OK. brass patina
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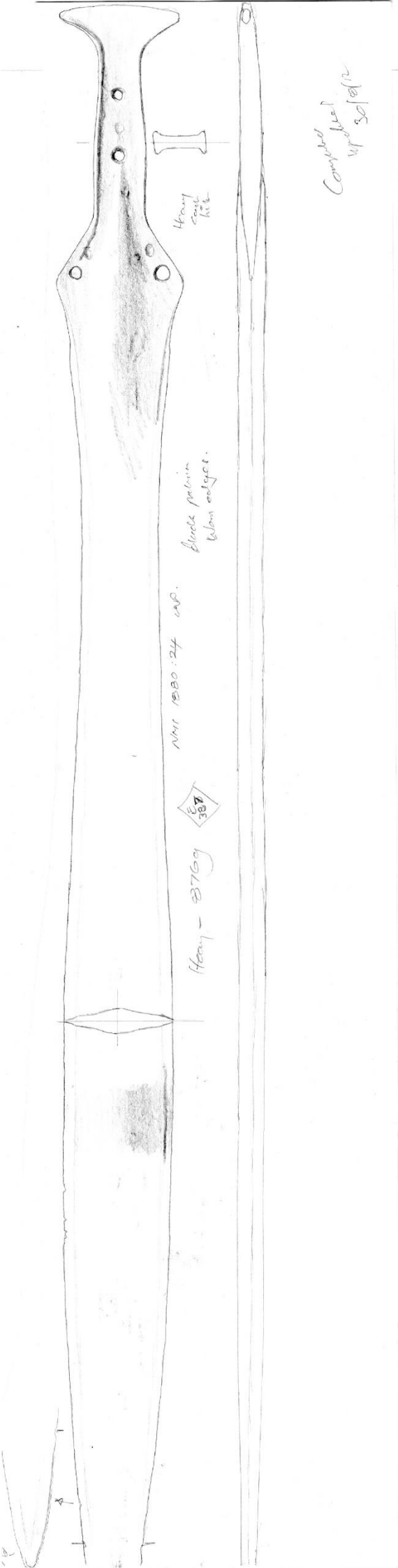


385



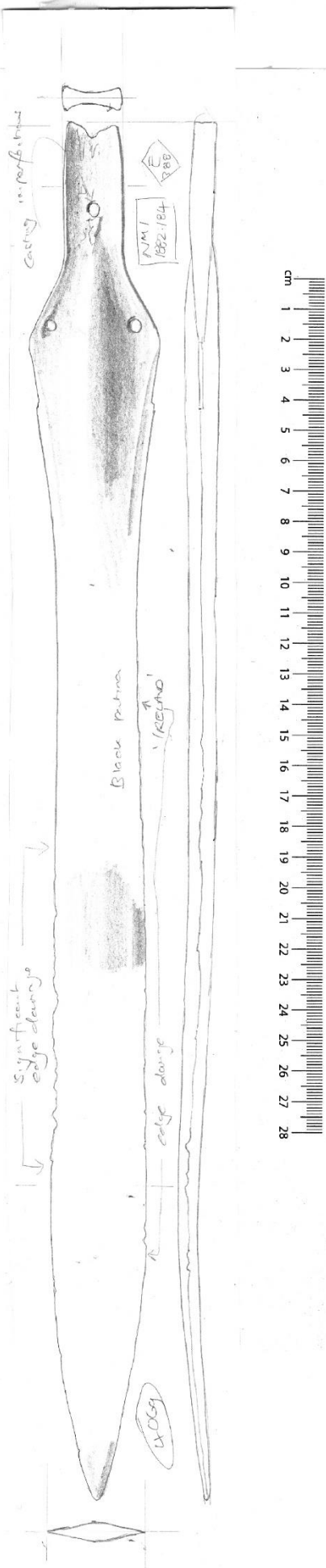


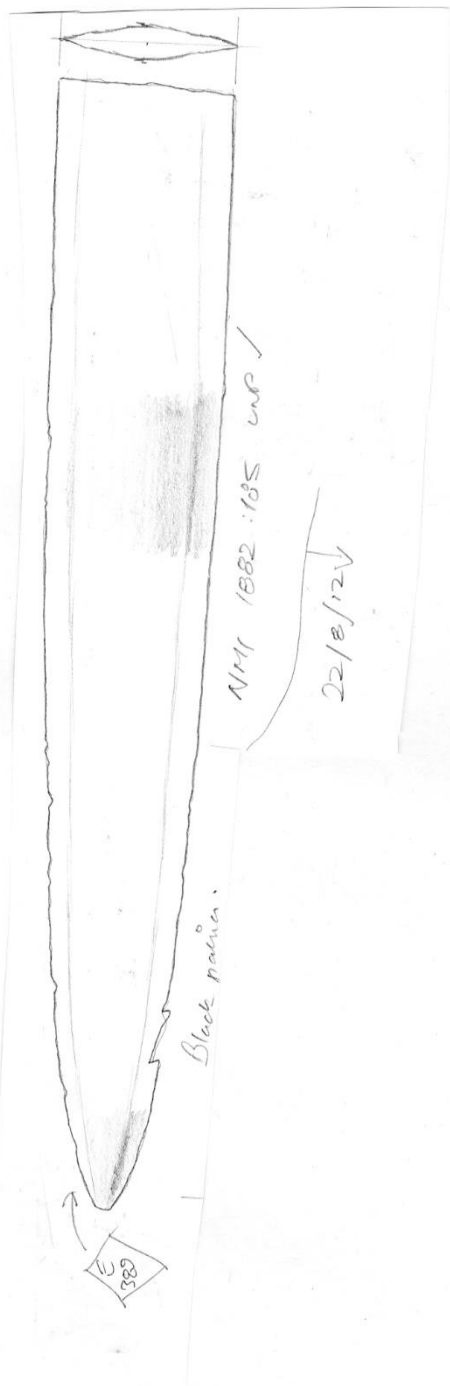
387



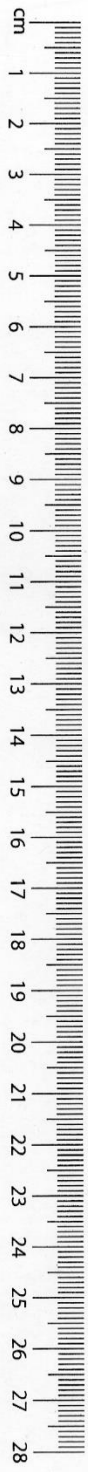
Completed
11/10/12

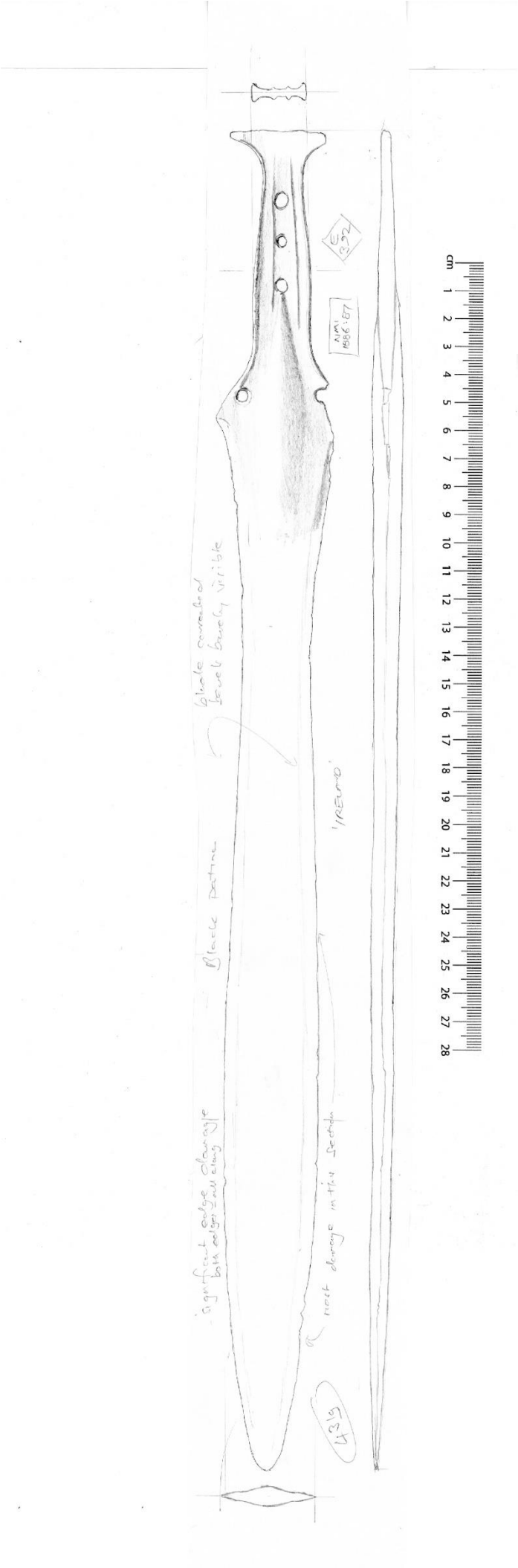


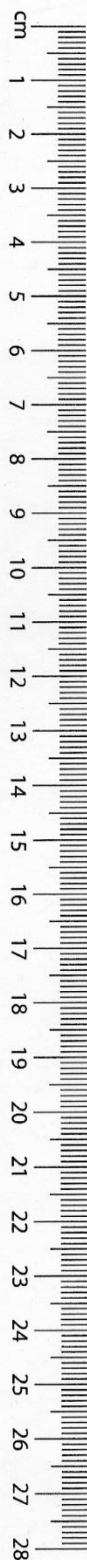
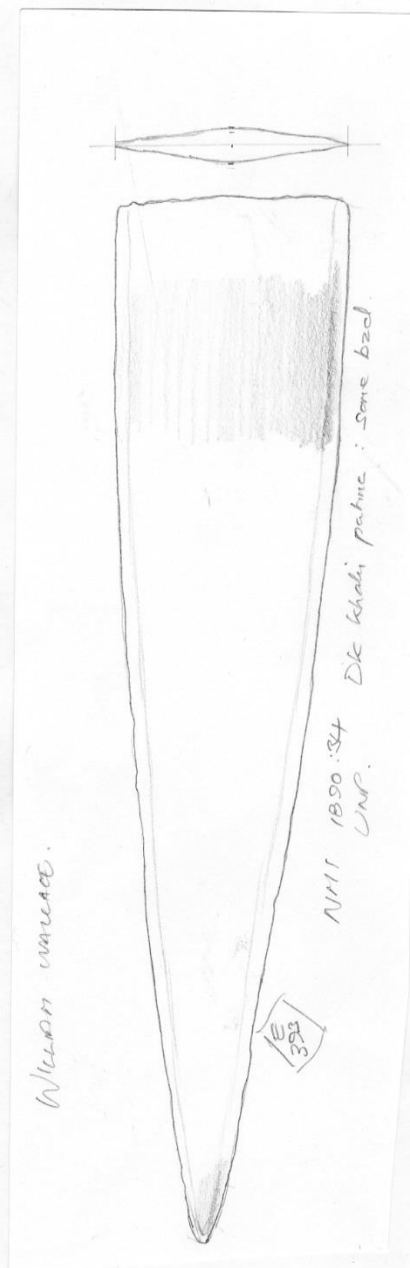


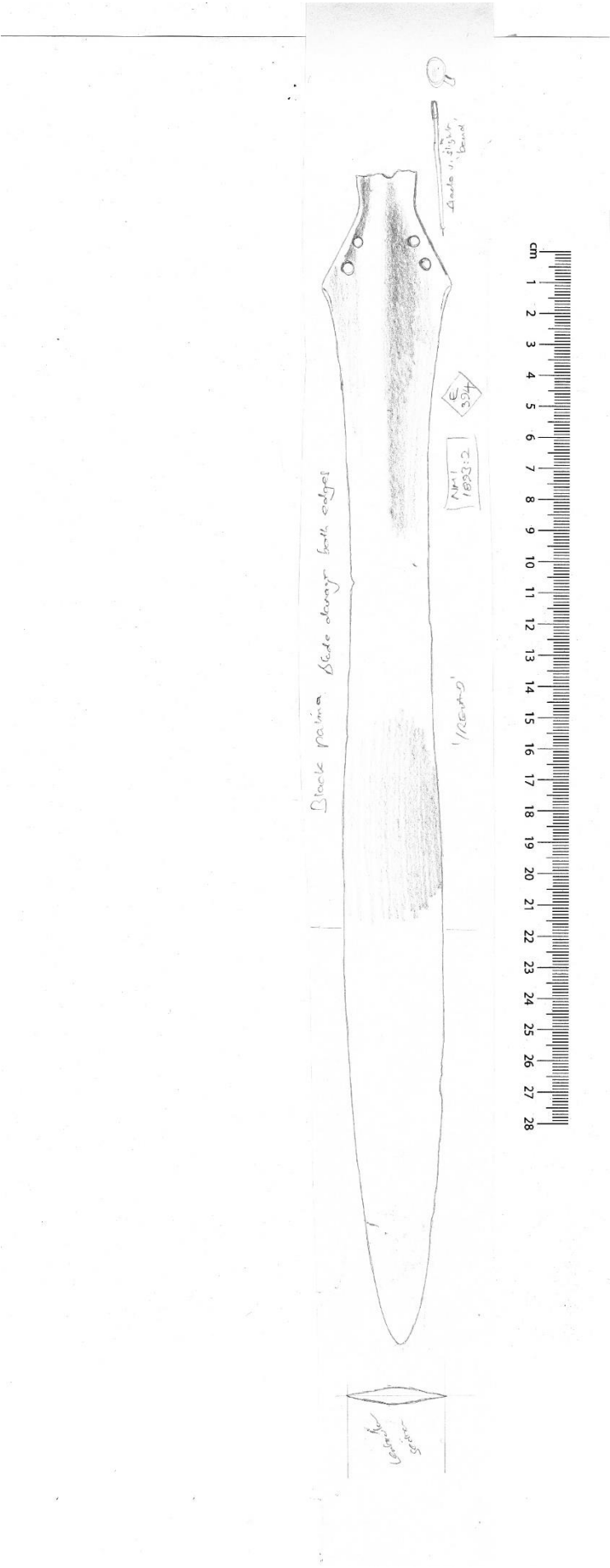


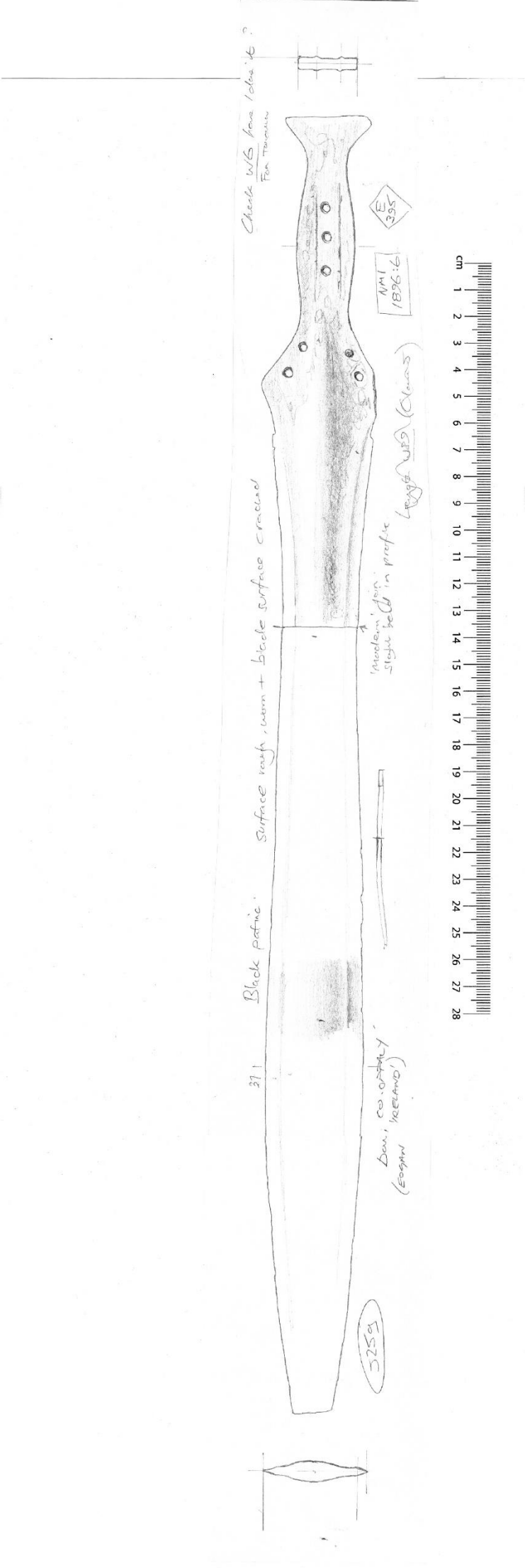
390/391

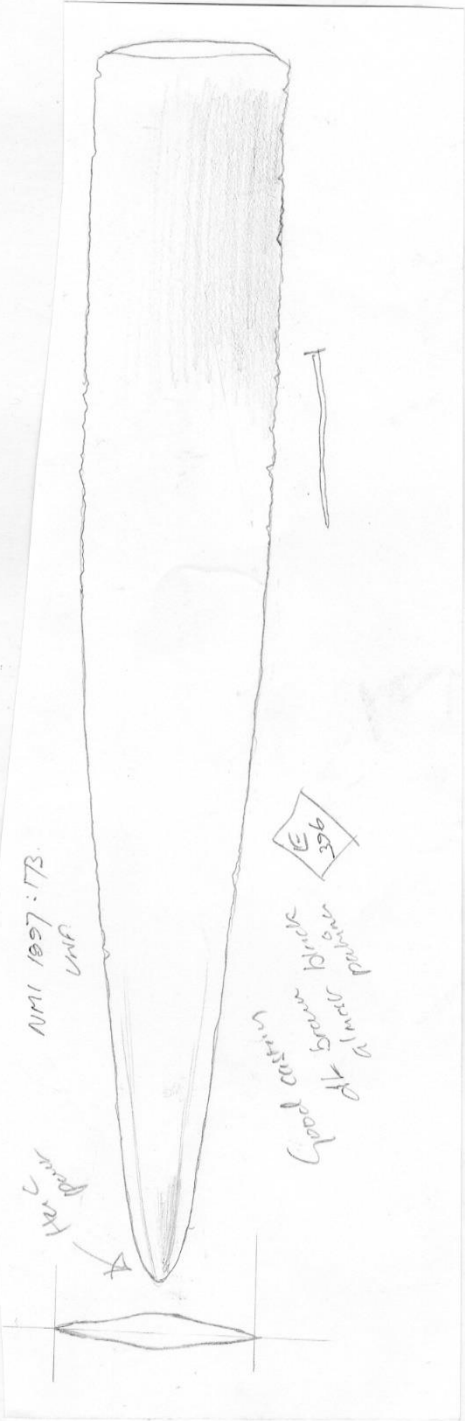


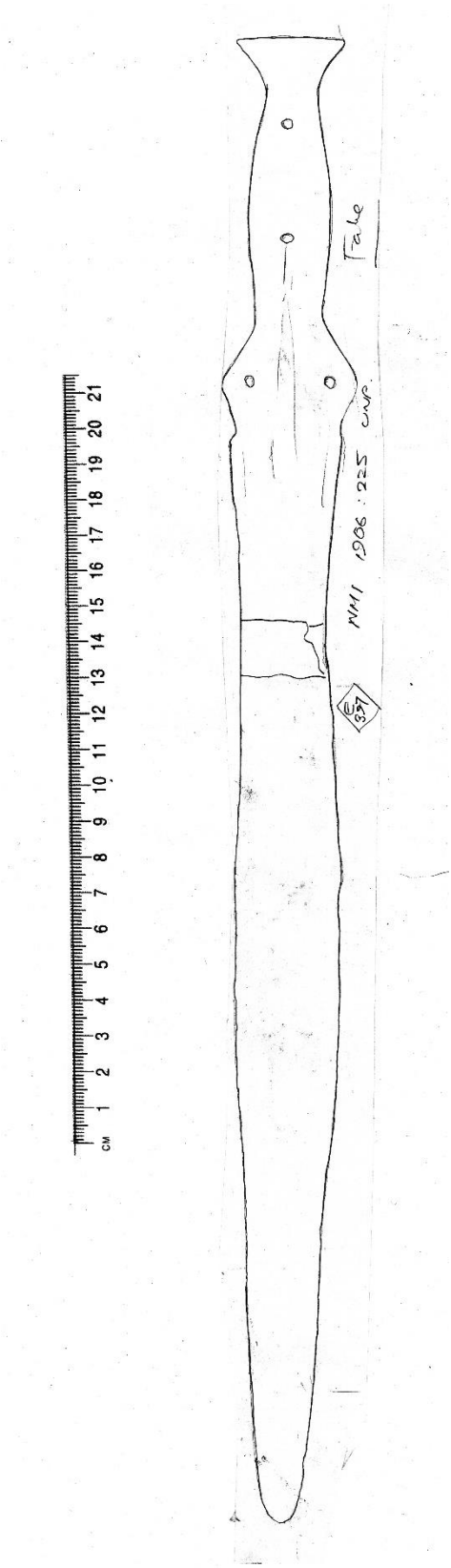




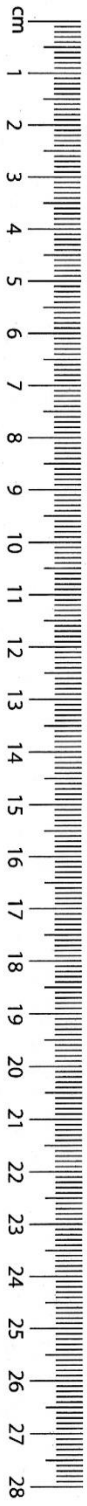
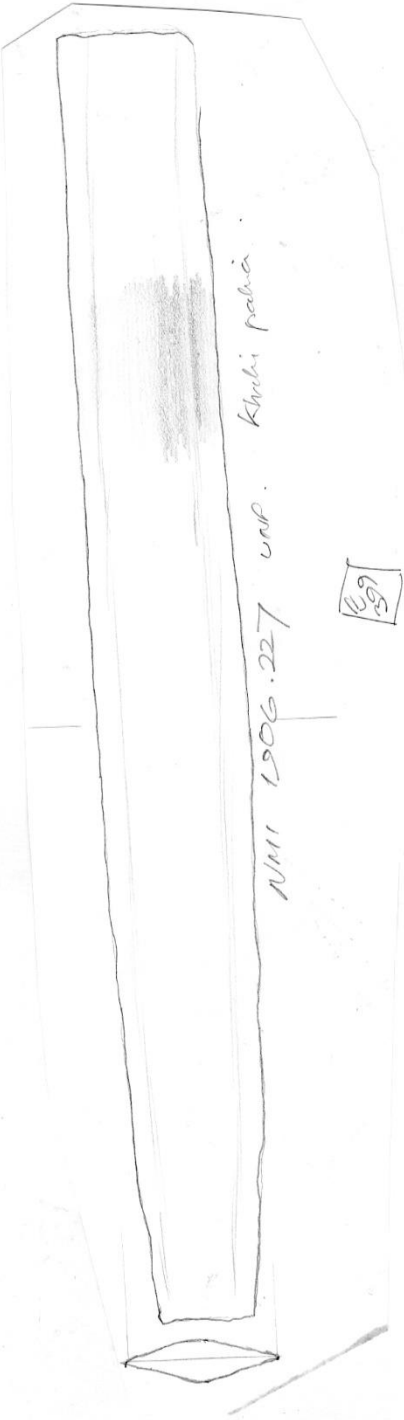


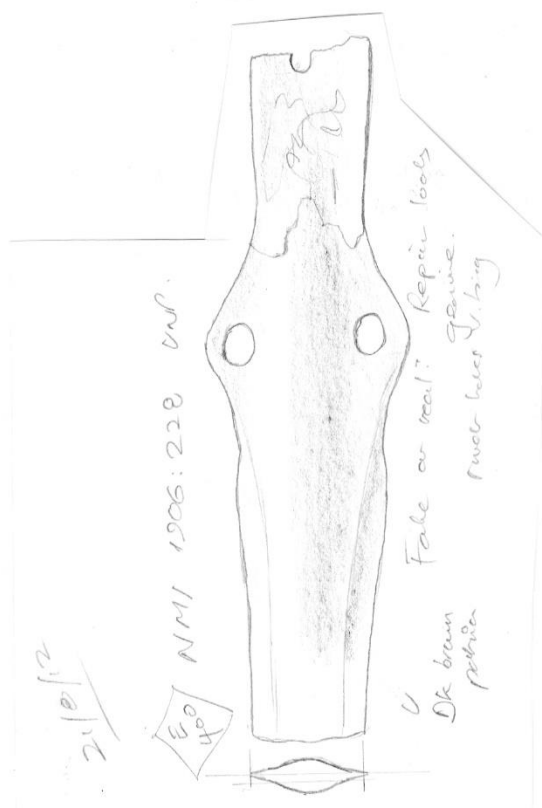




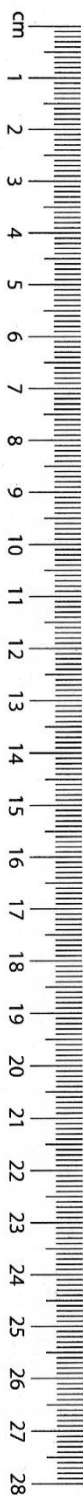
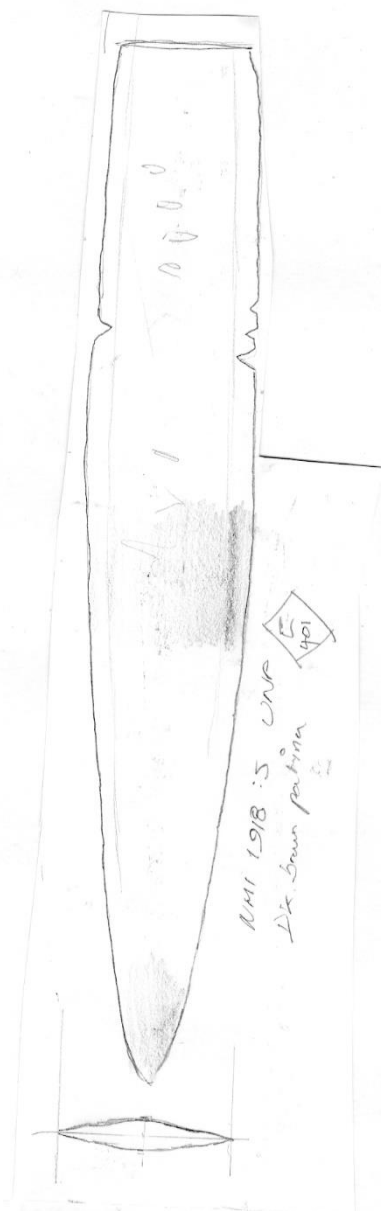




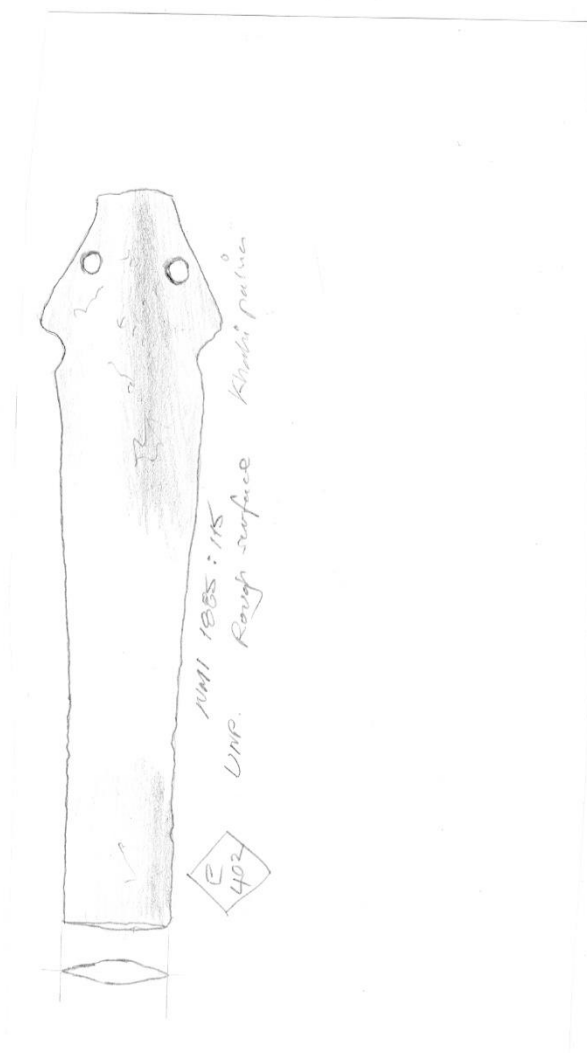




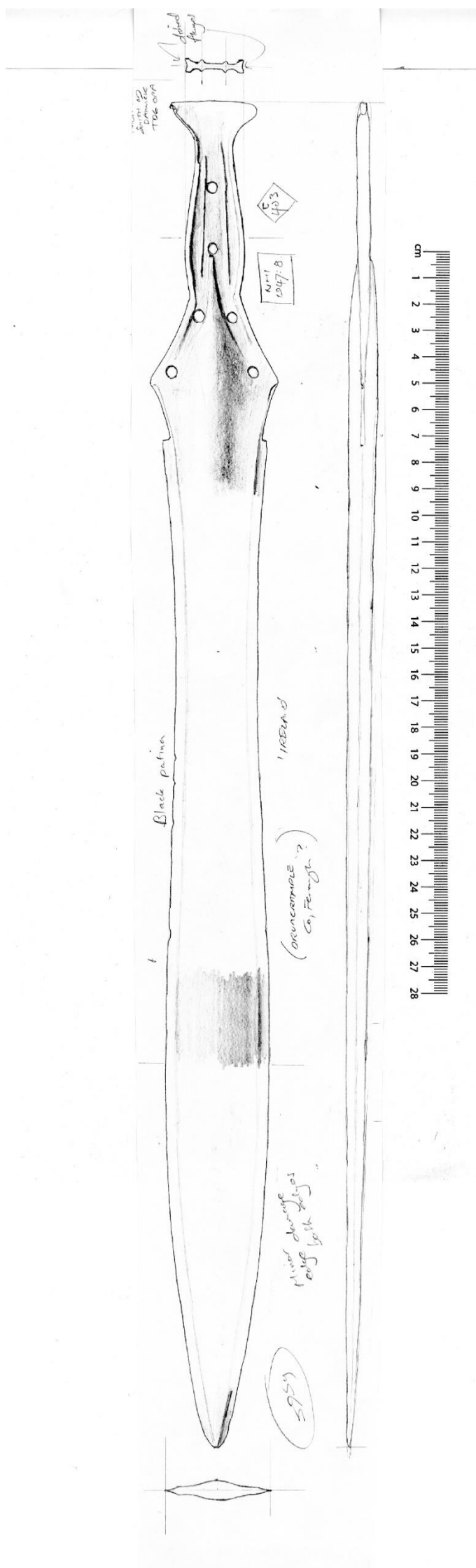
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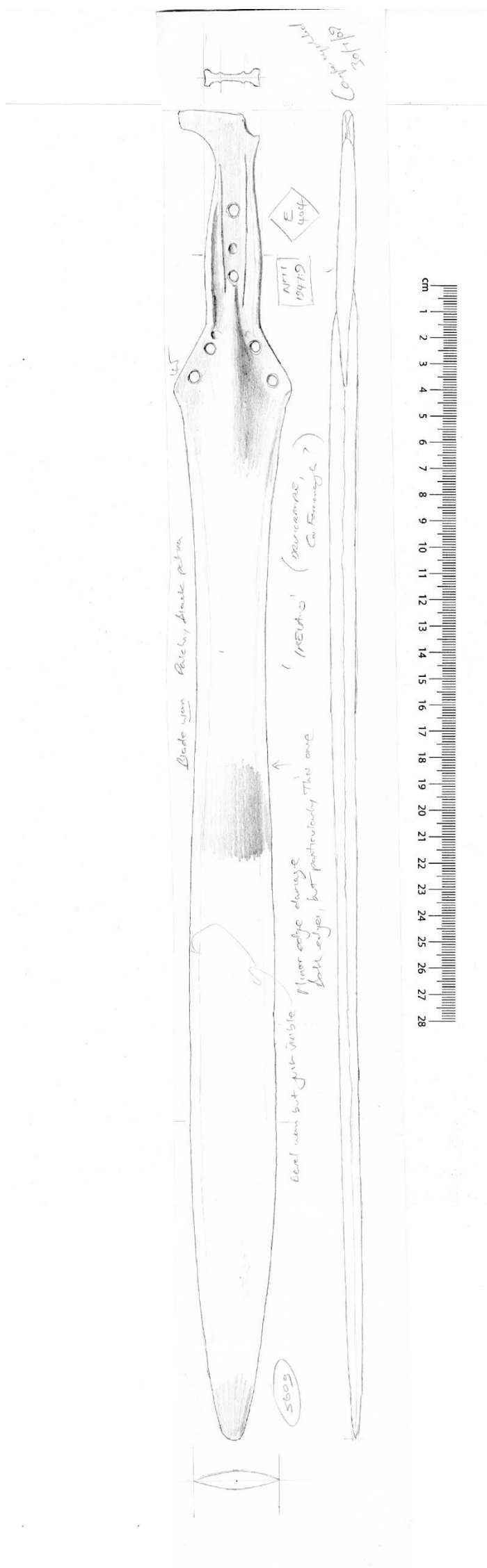


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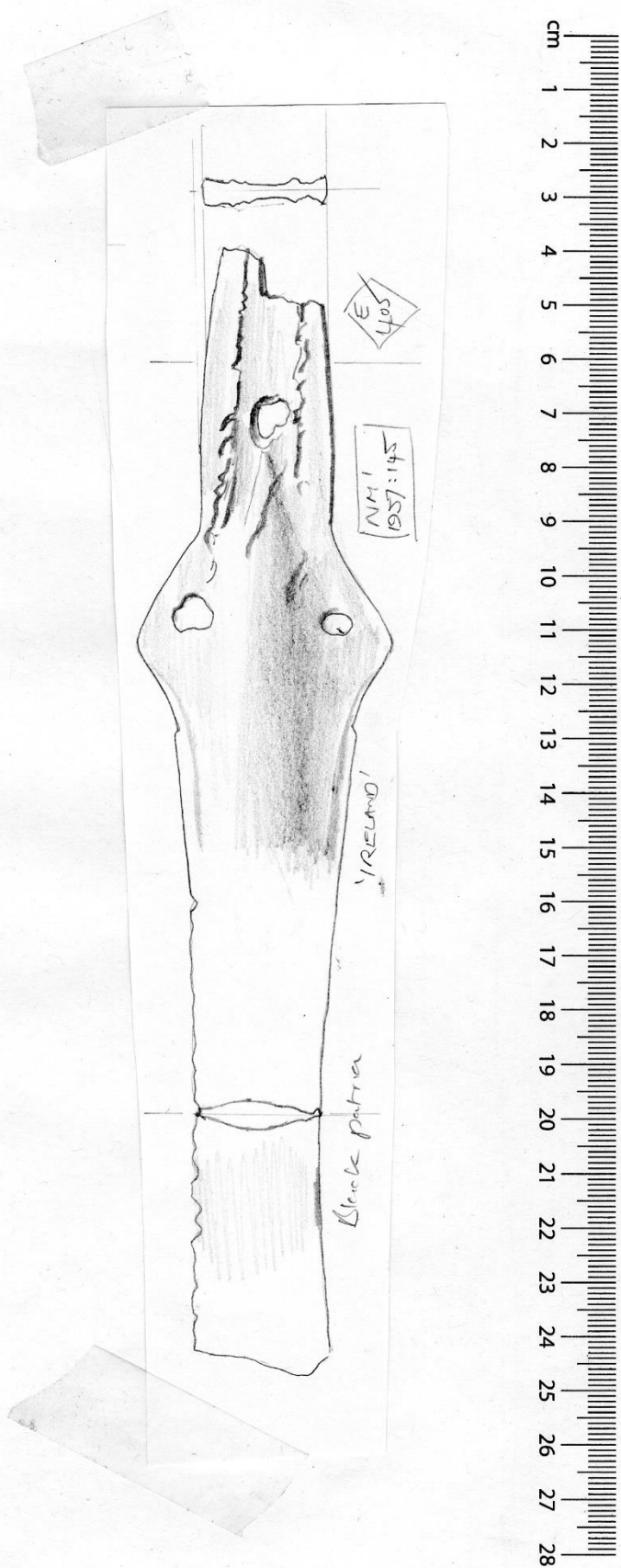


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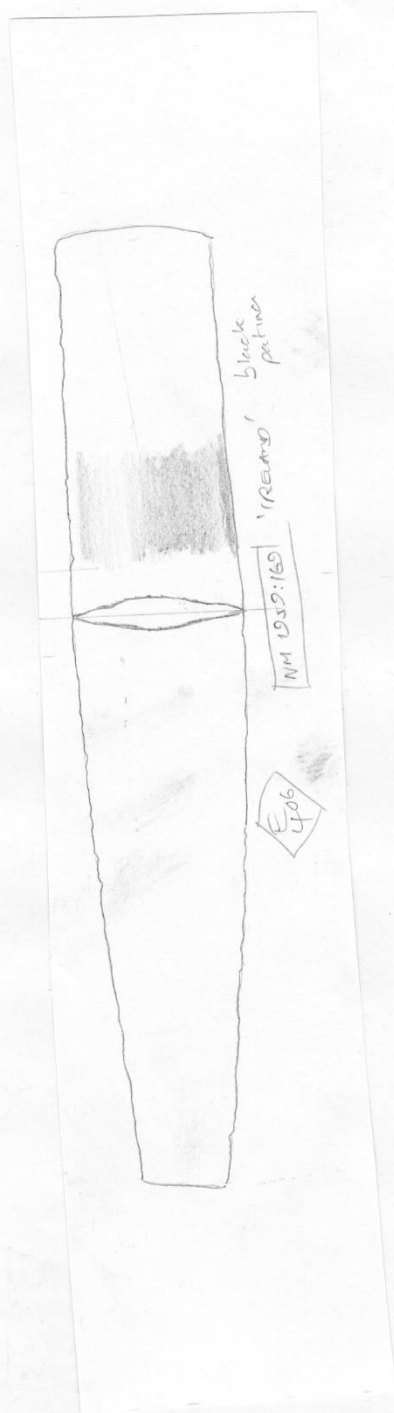




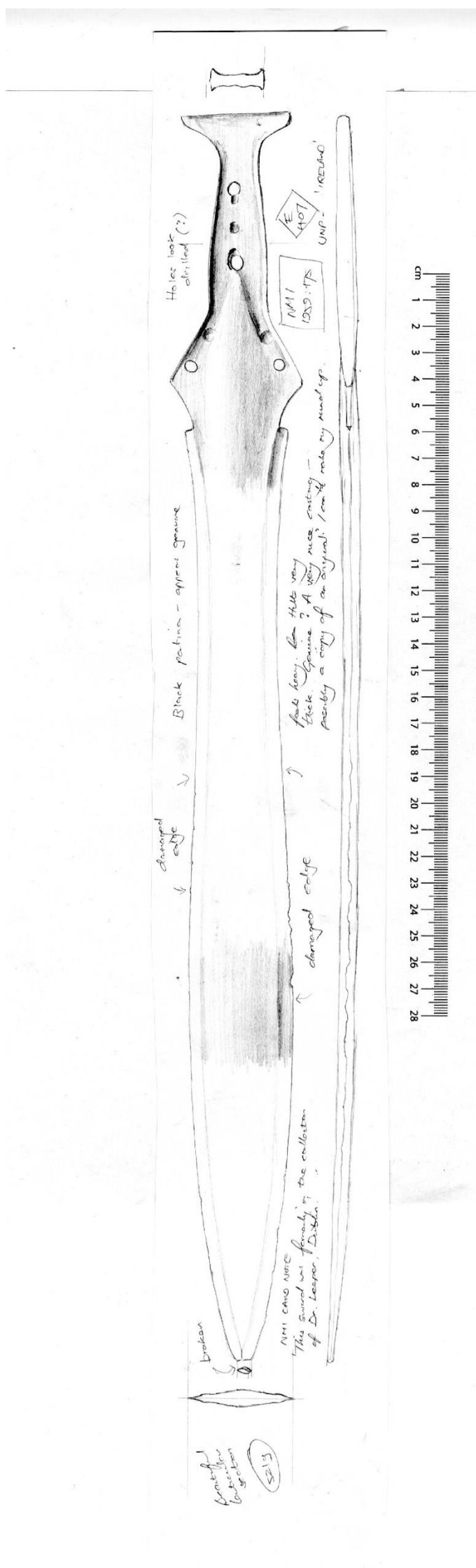
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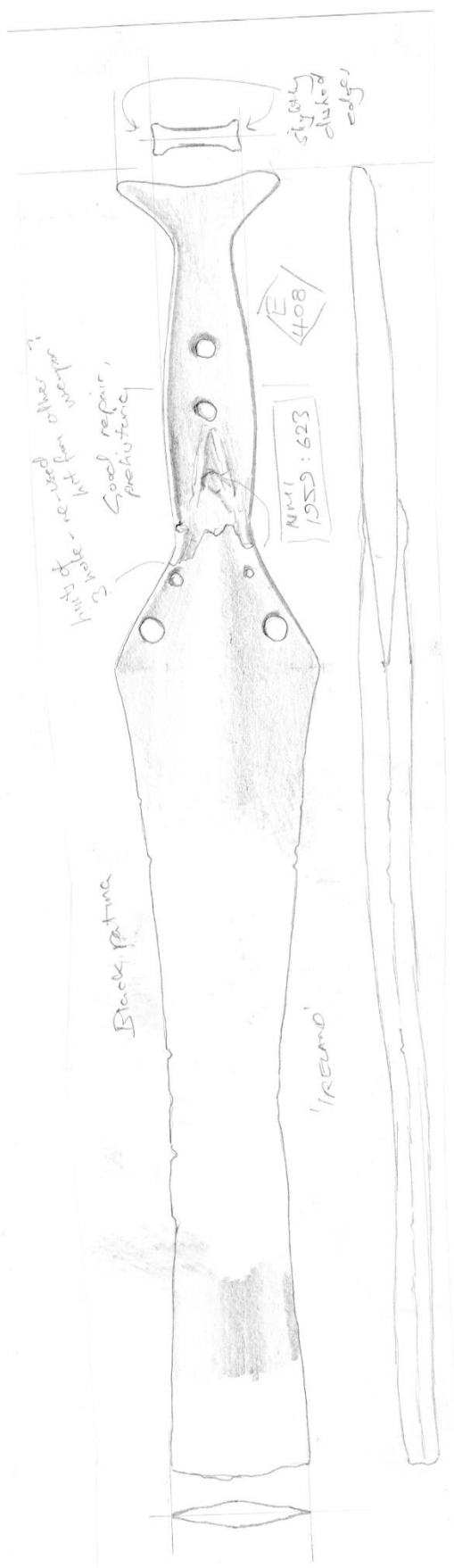


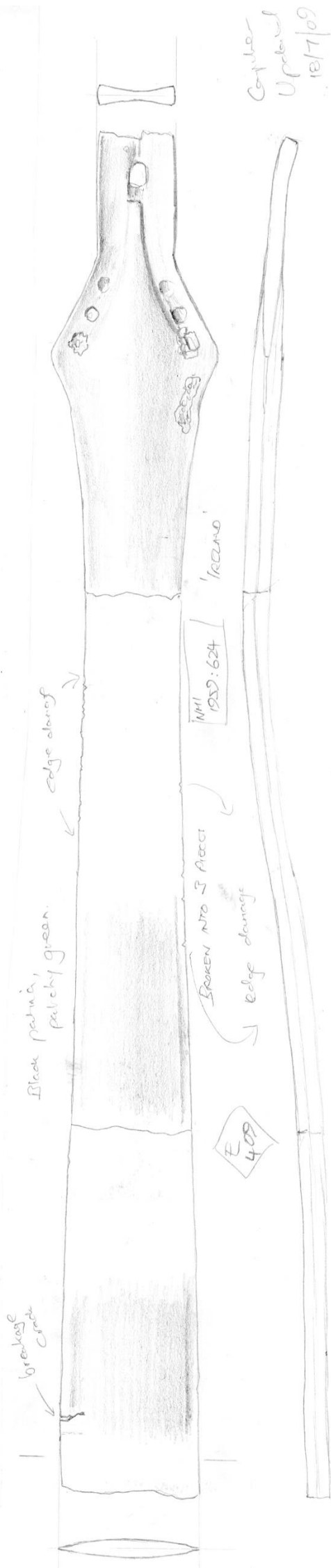
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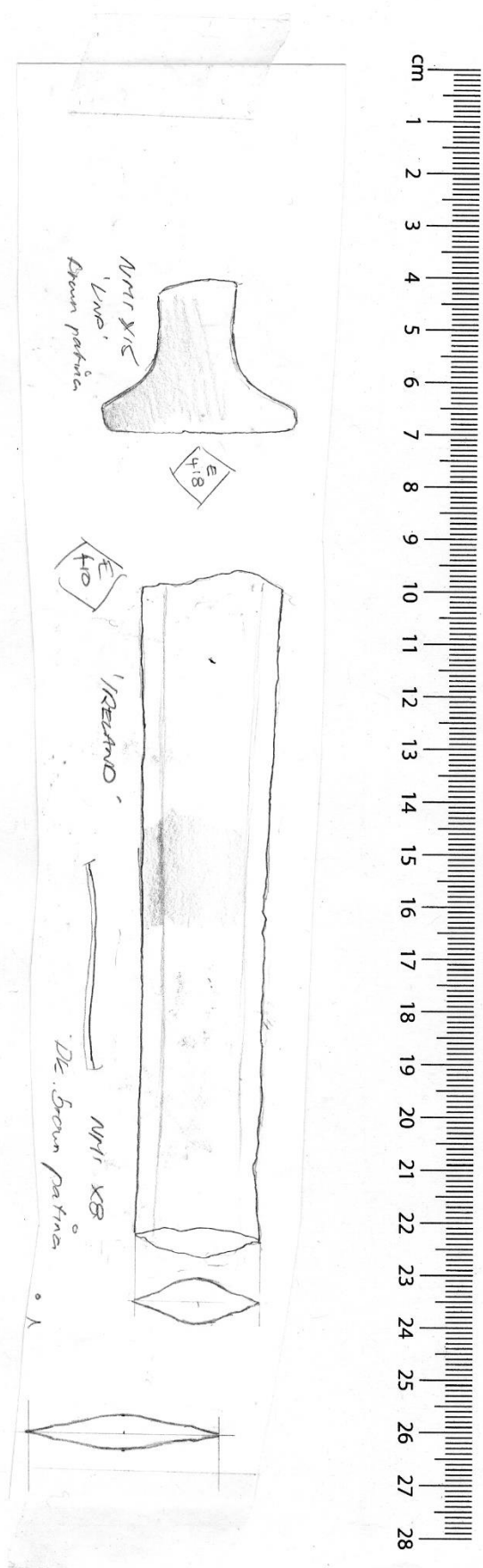
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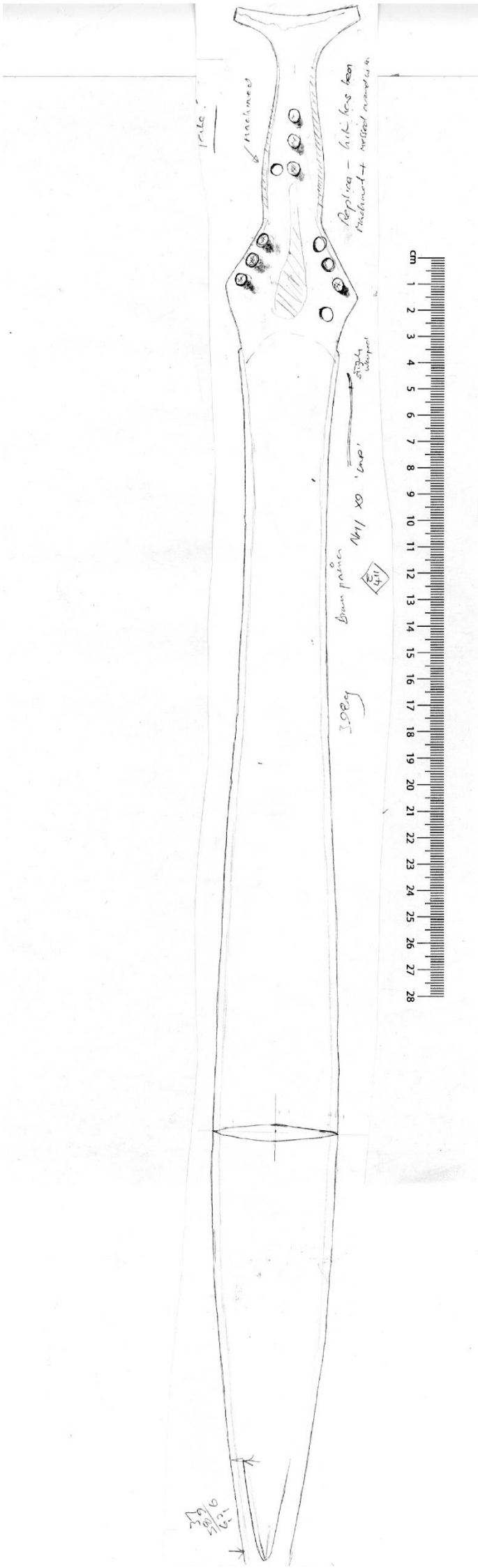


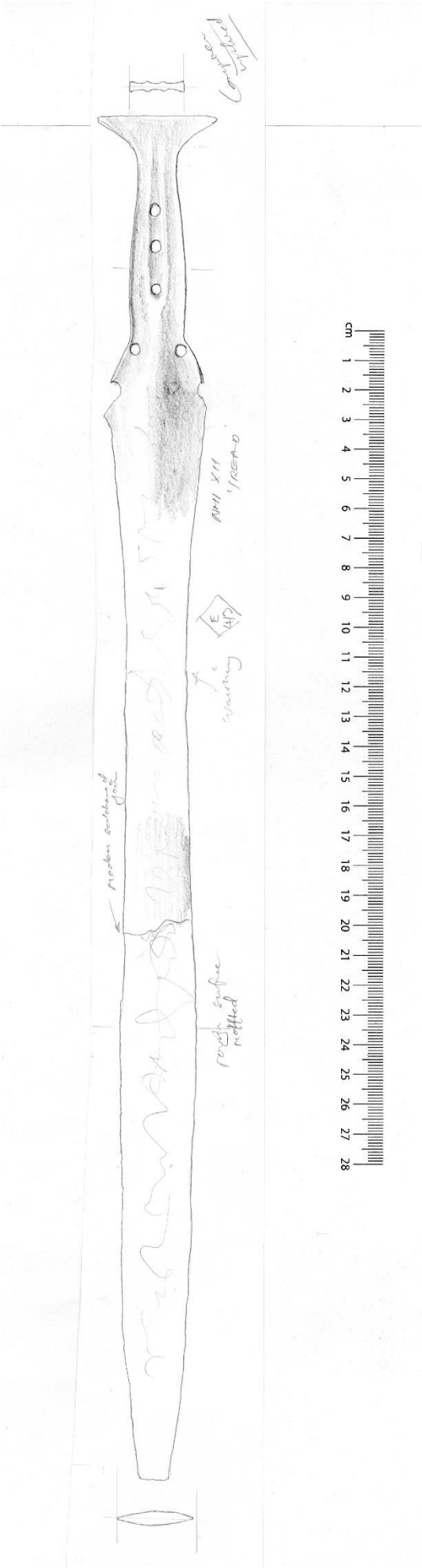


410
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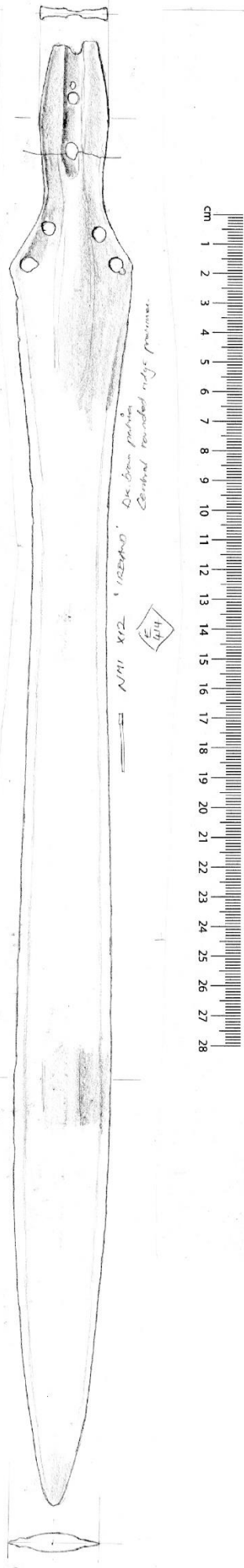


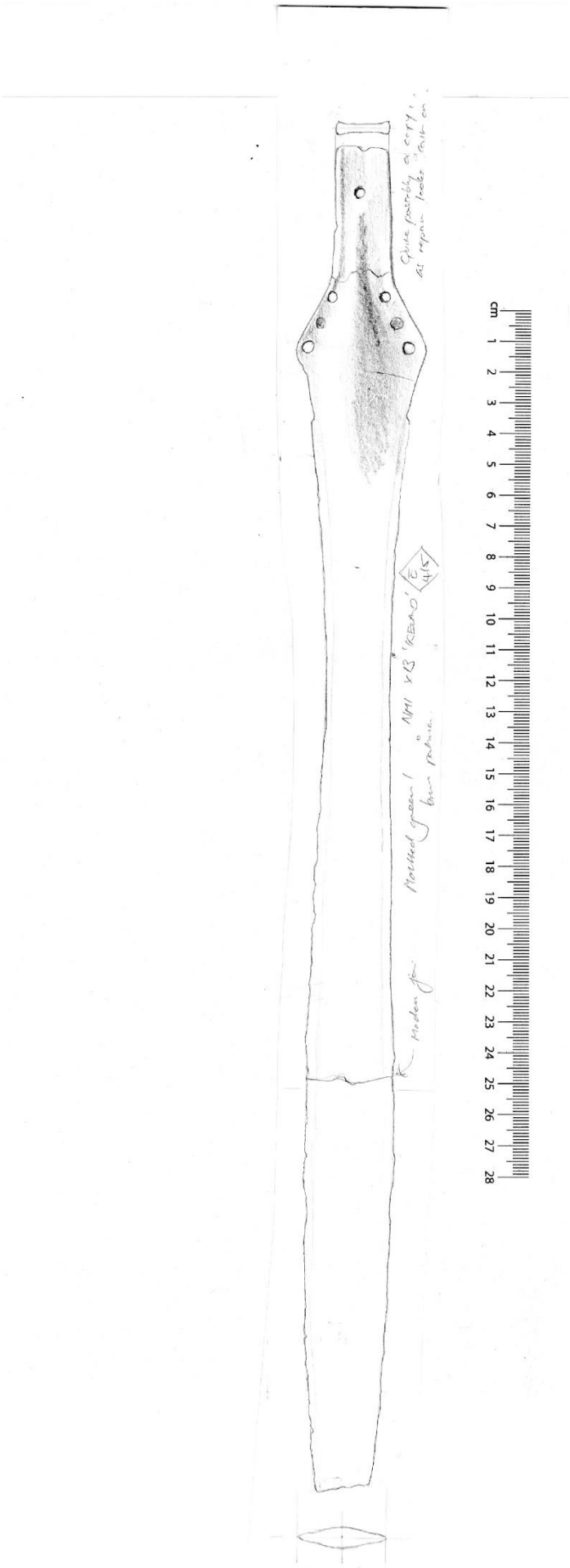
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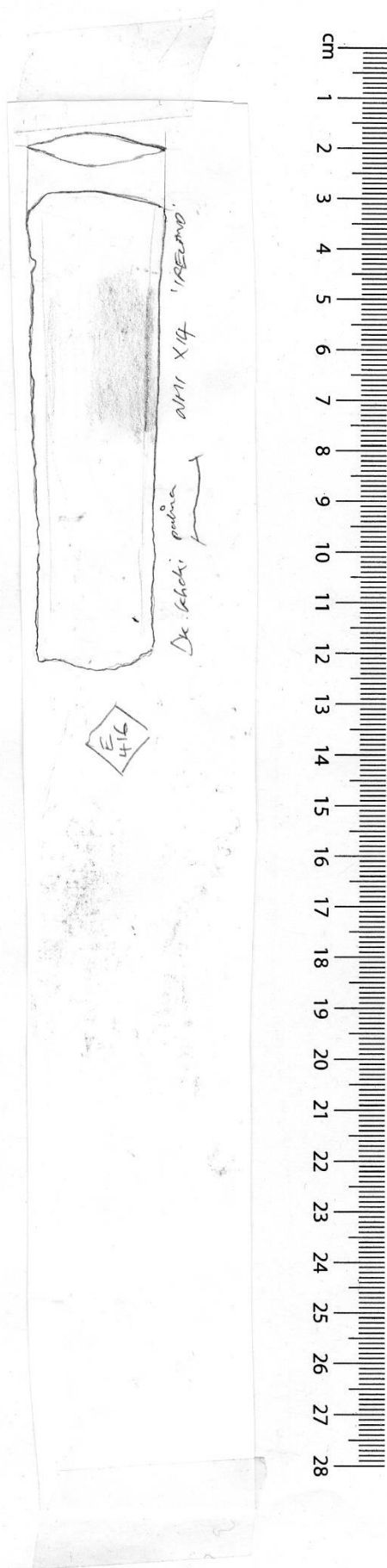


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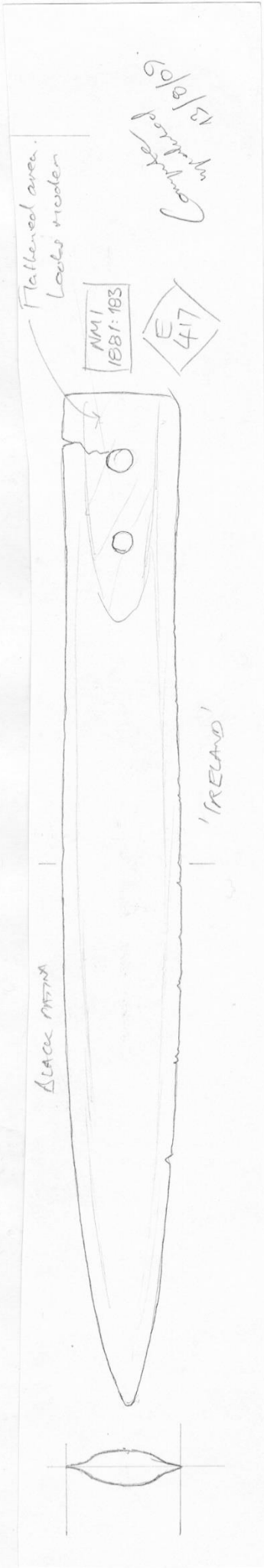


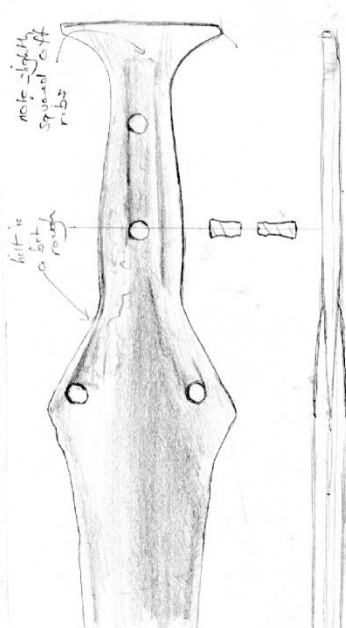
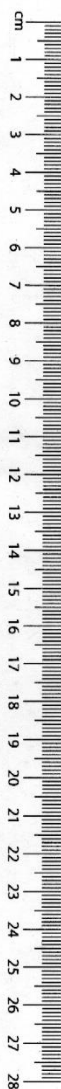


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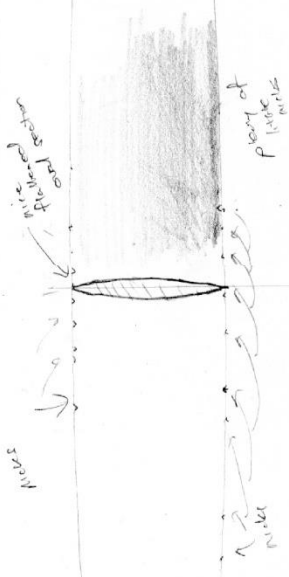


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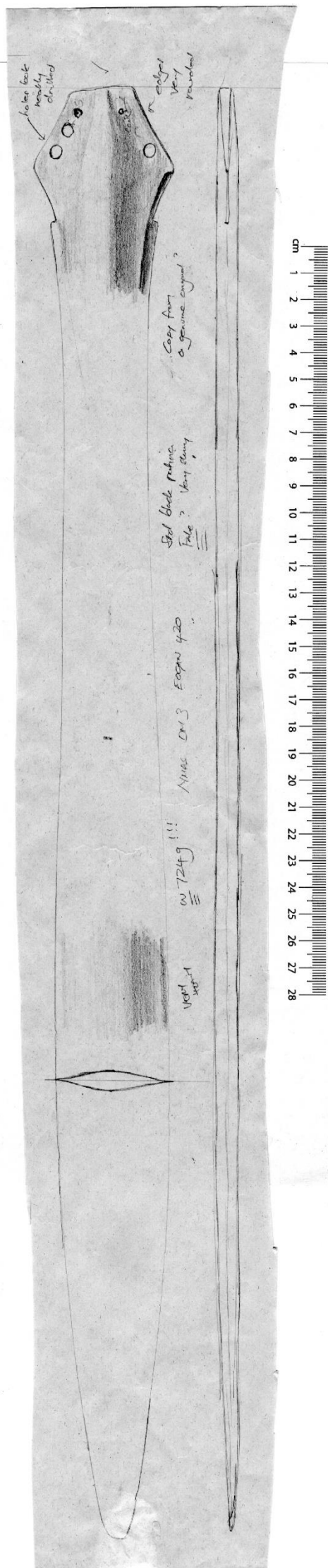




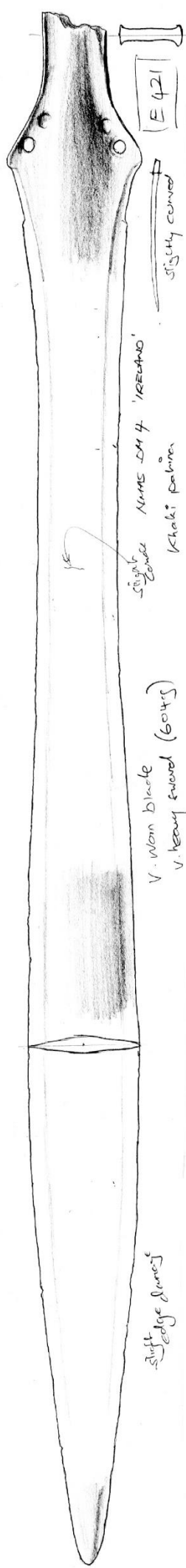
6089 Eogan 419



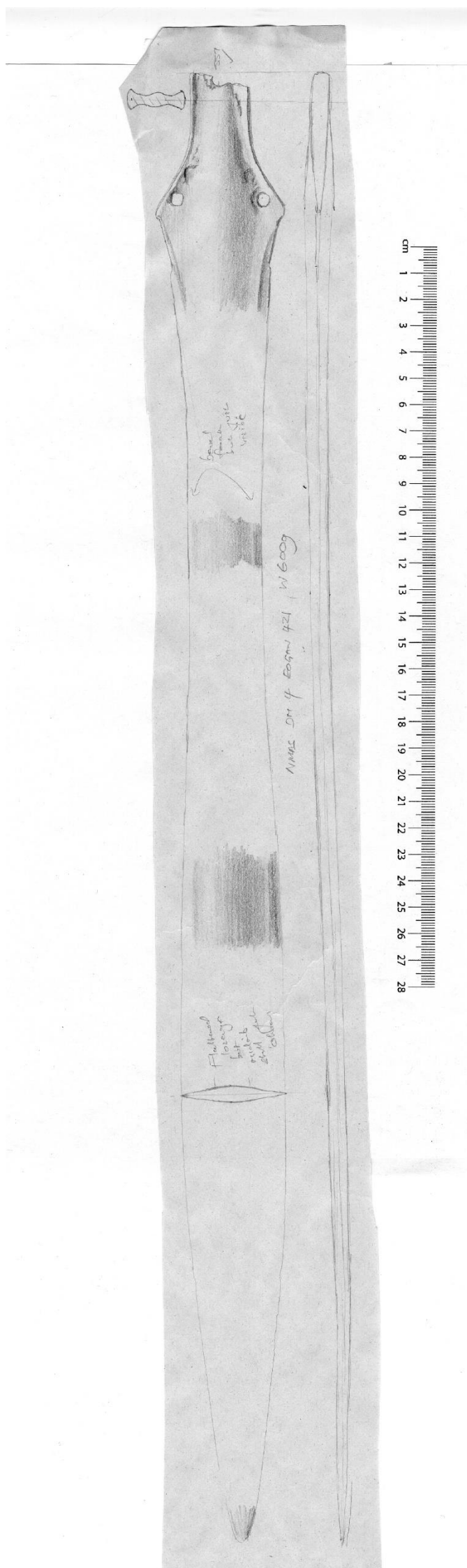
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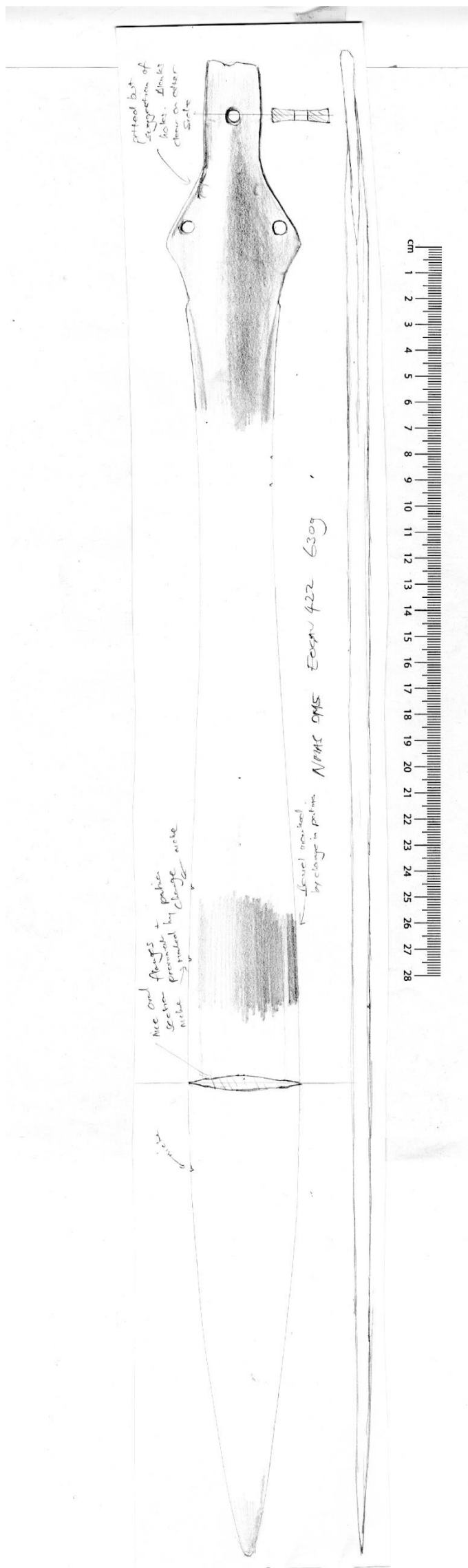
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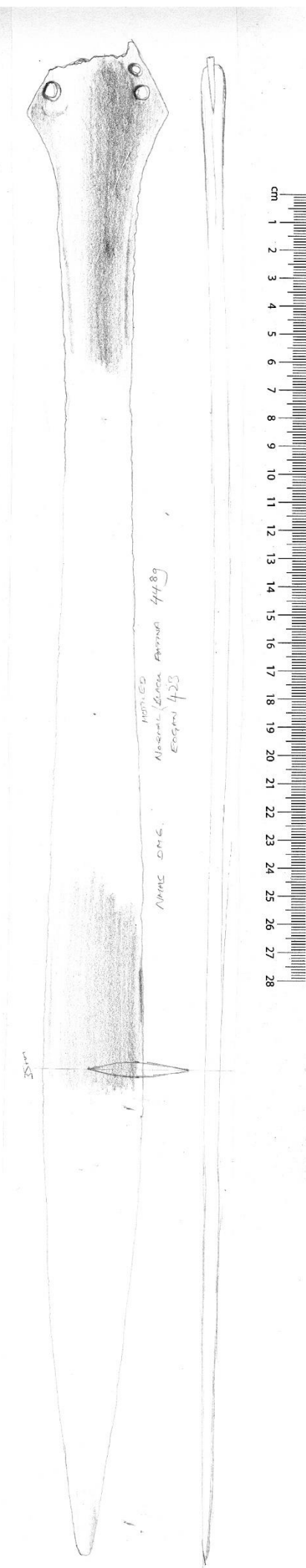
421(2)



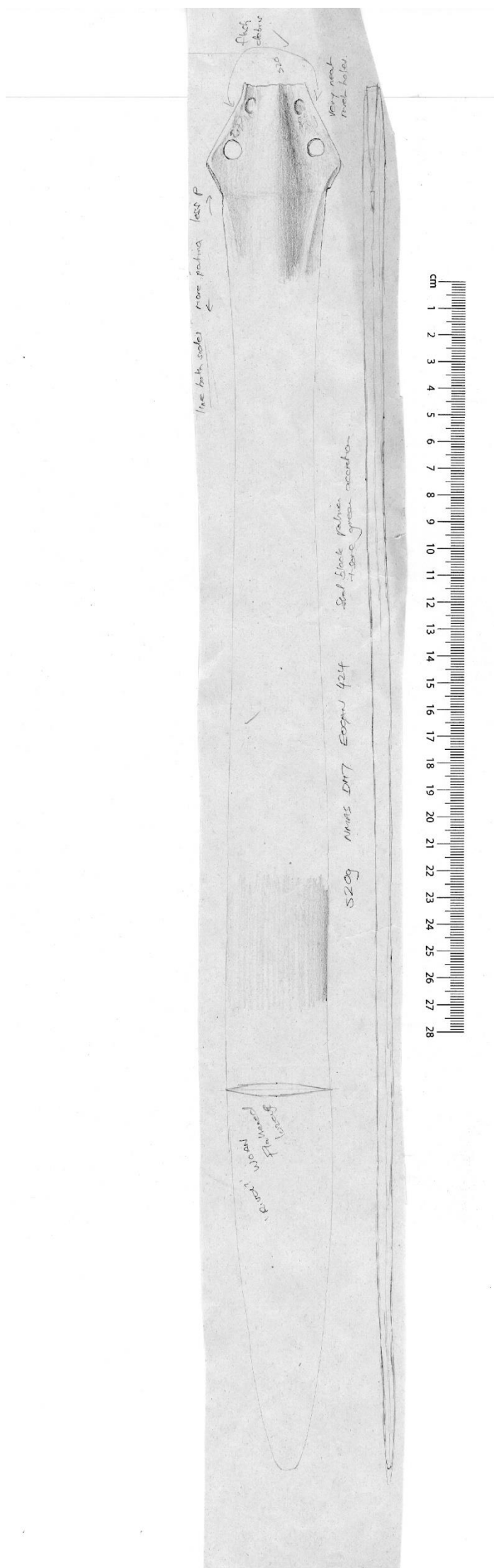
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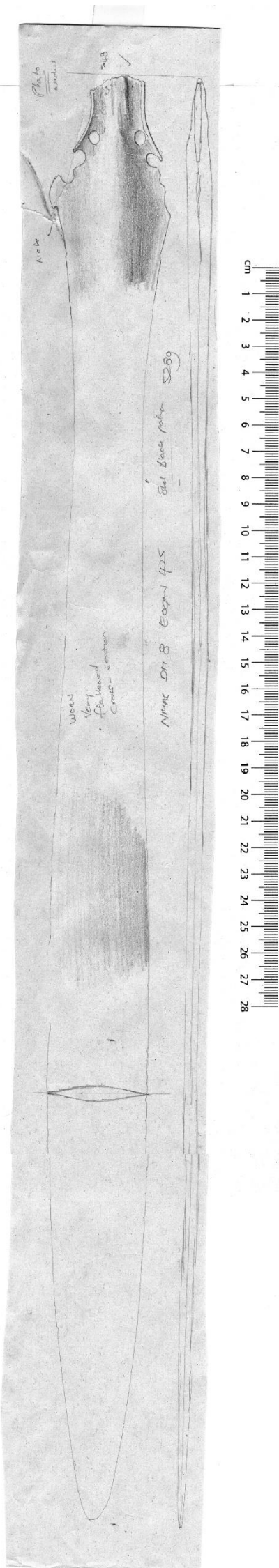
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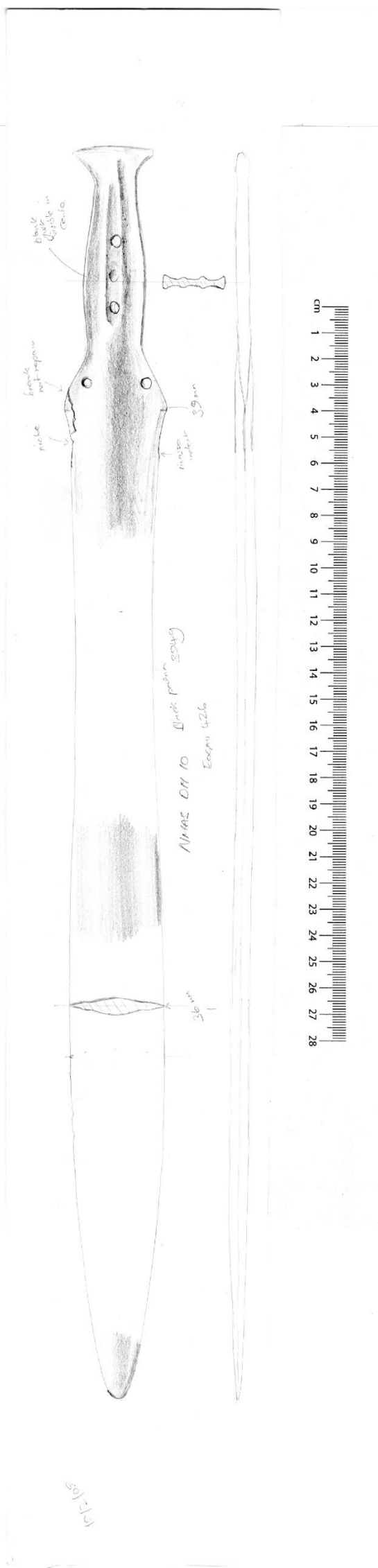
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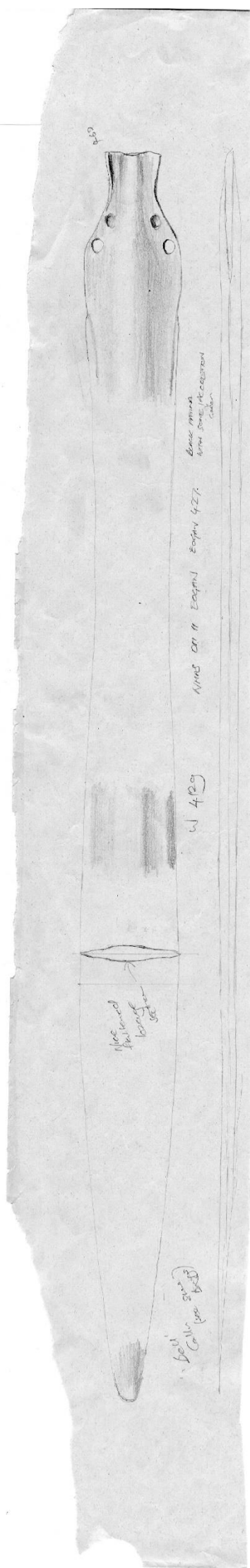
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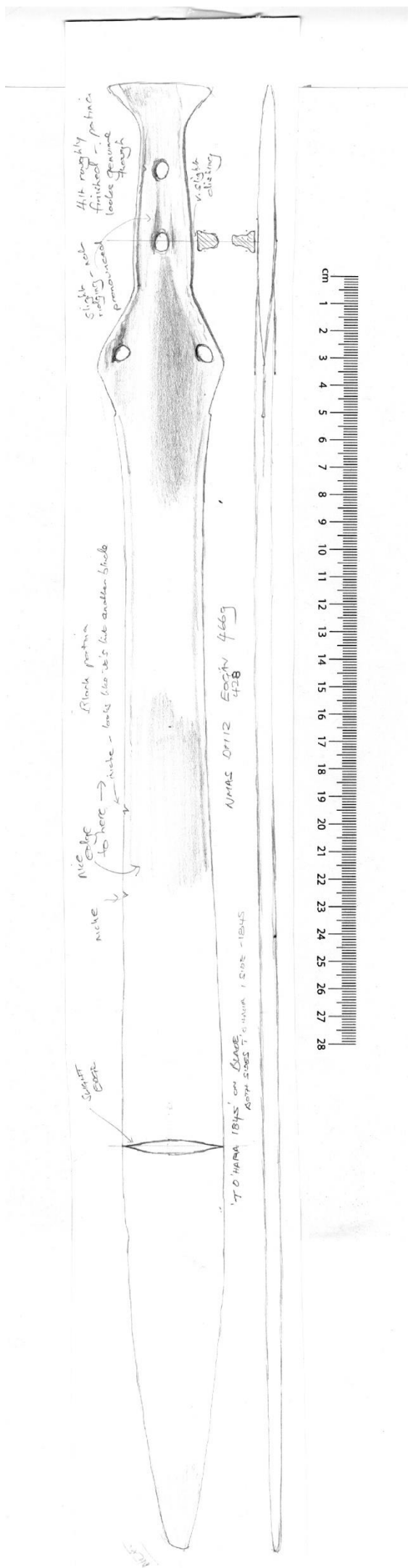


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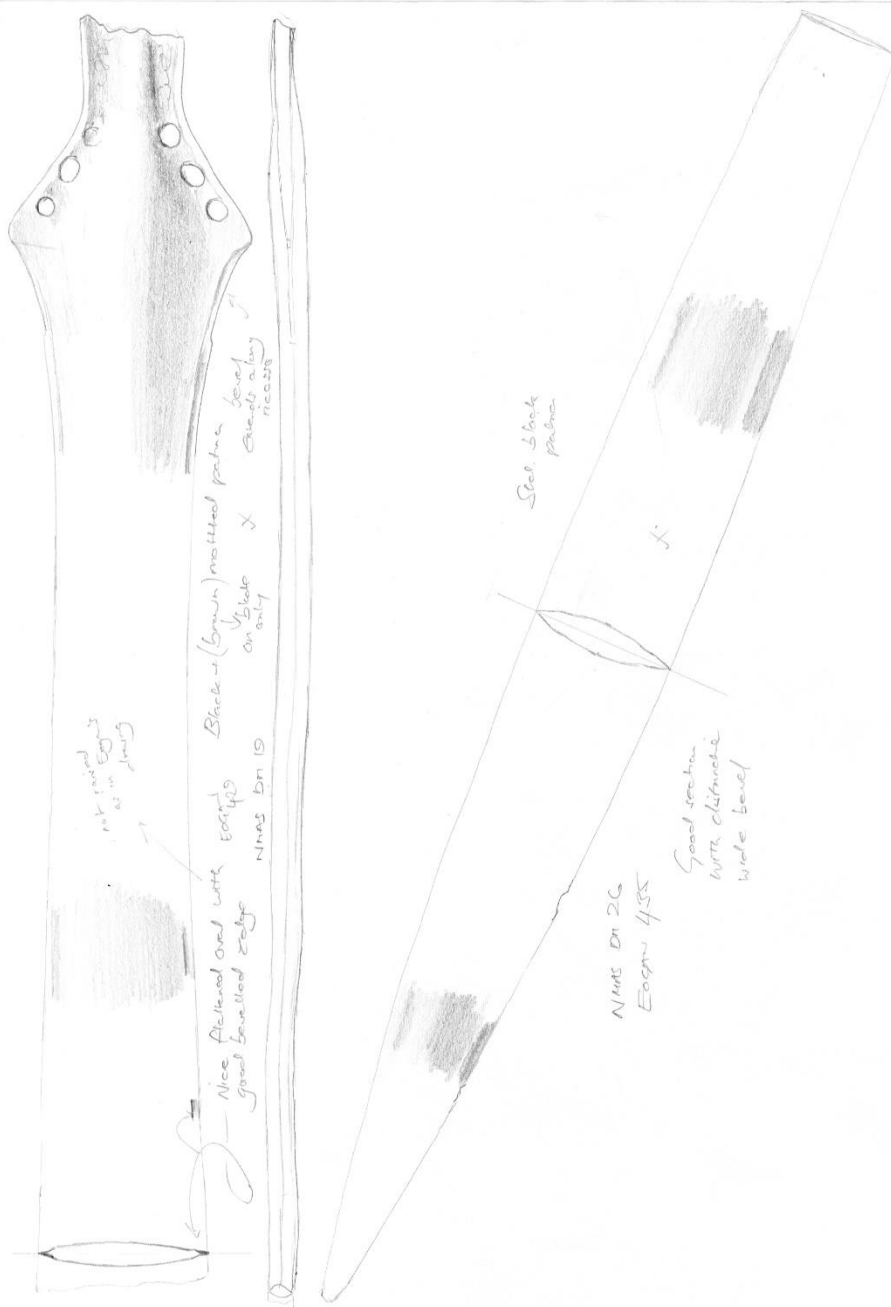


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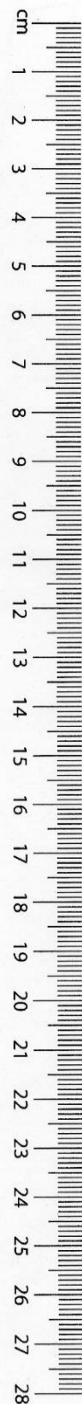
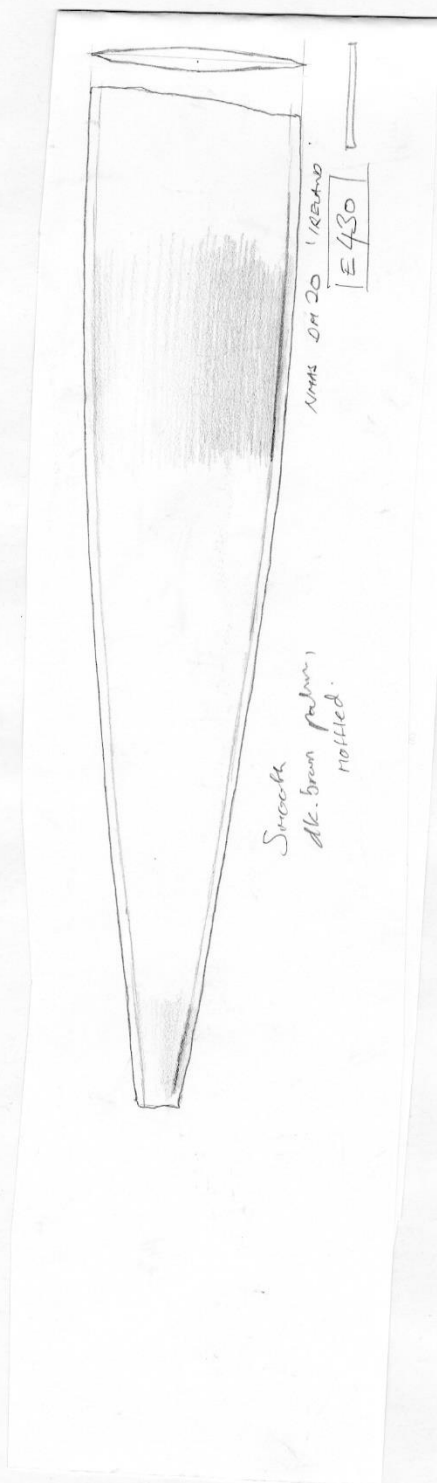




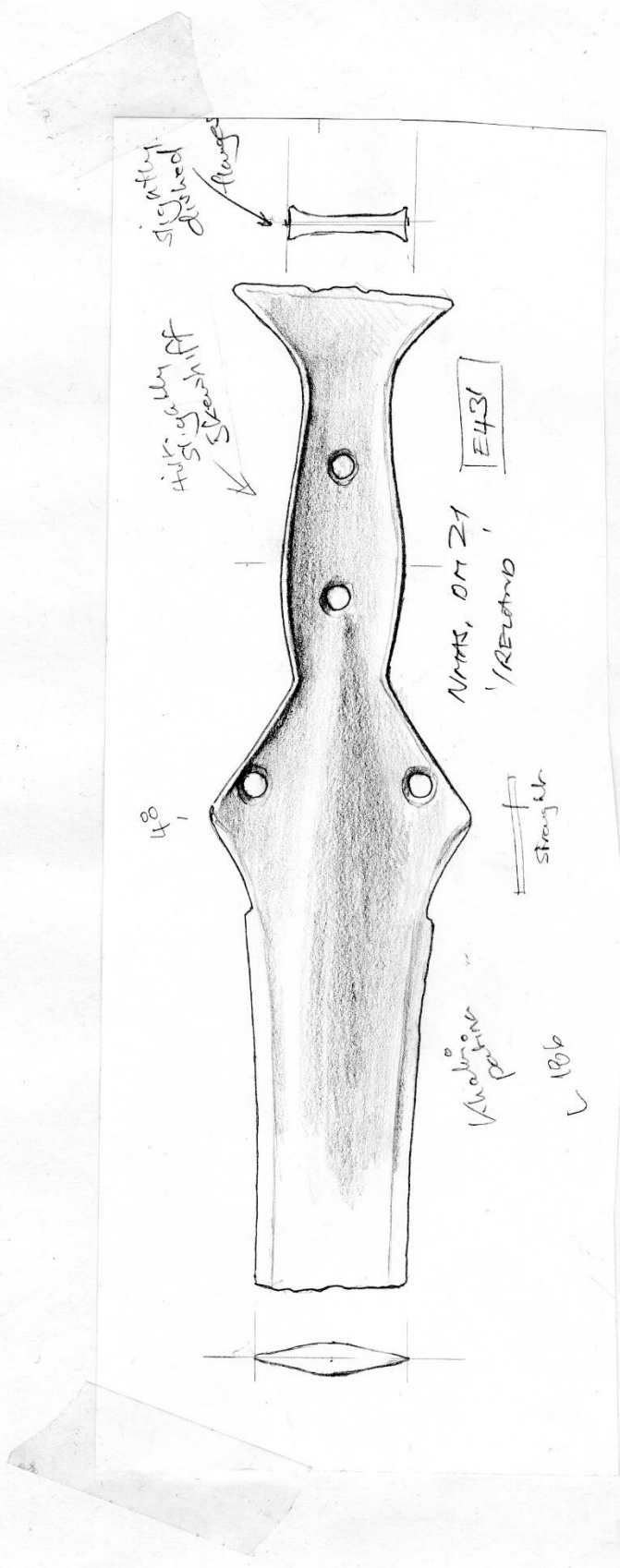
429
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435



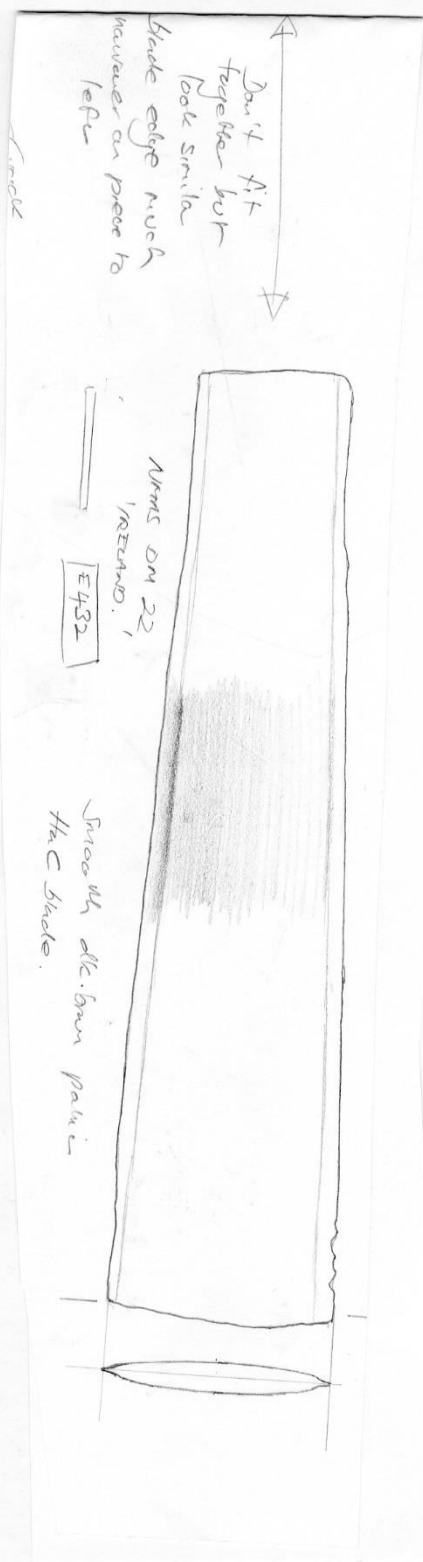
430



431



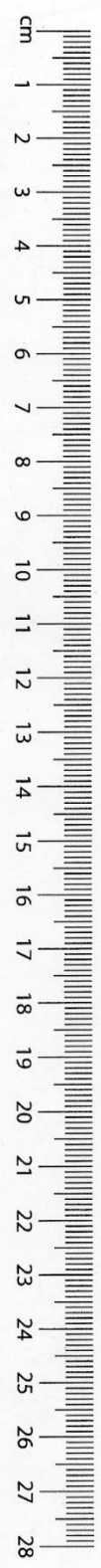
432



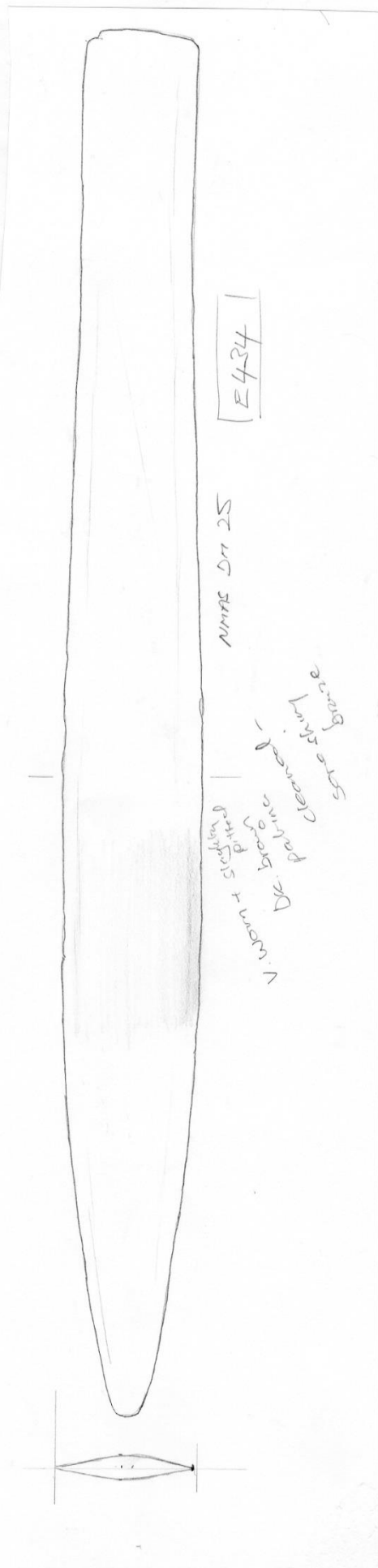
433



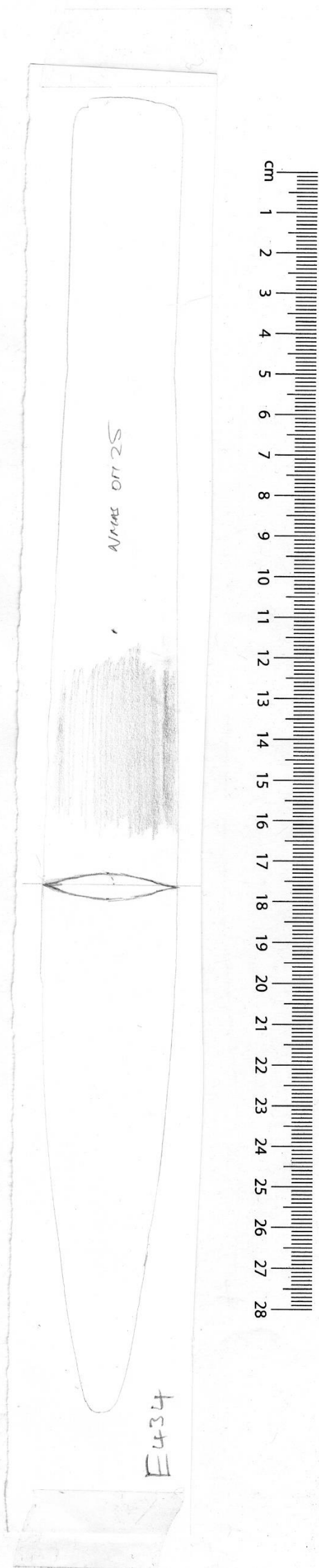
View of 24 East 433
Green Point



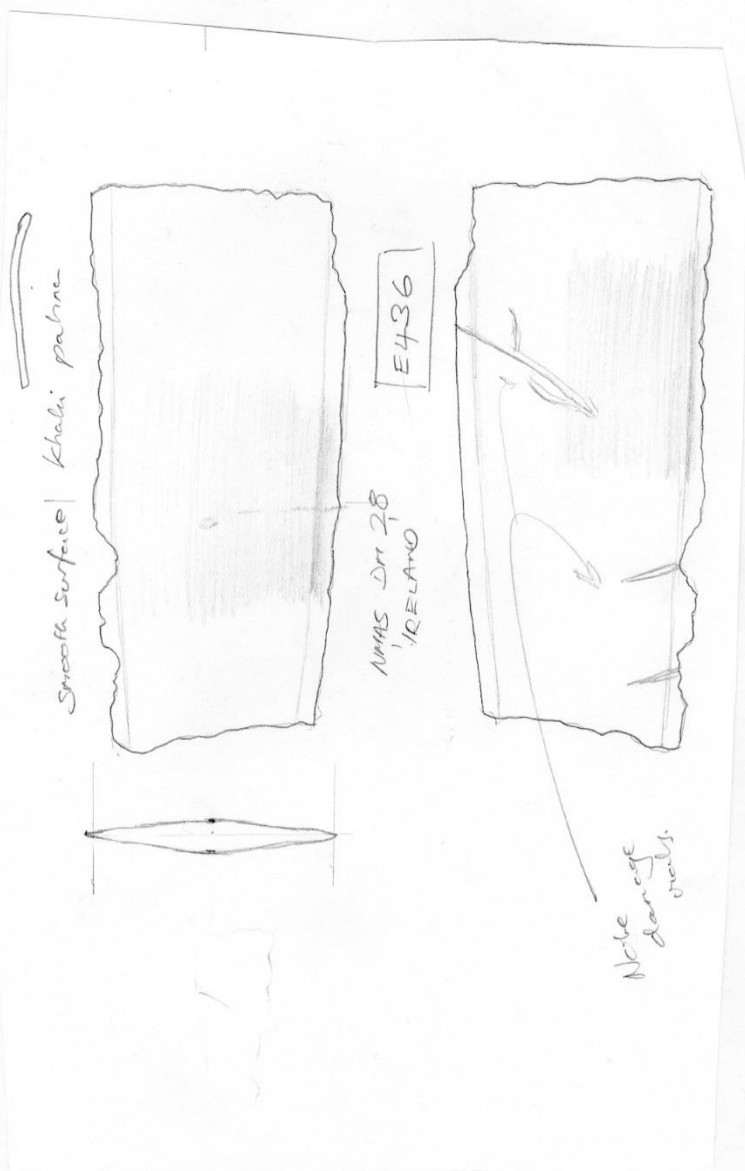
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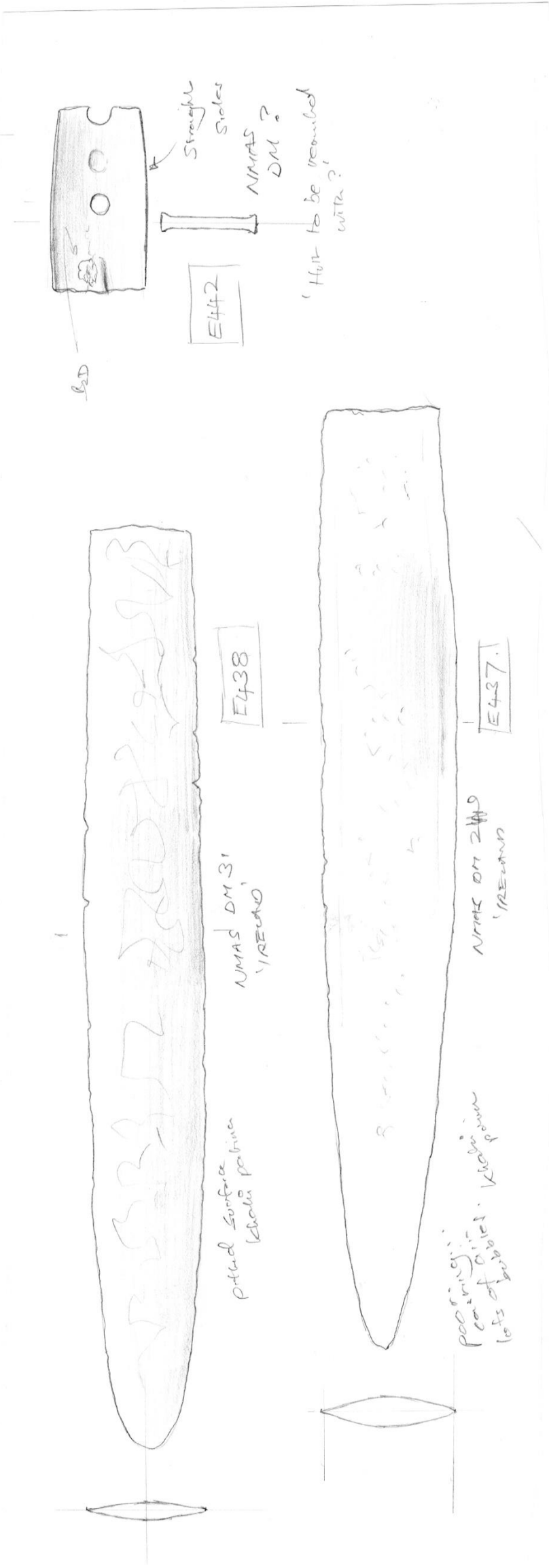
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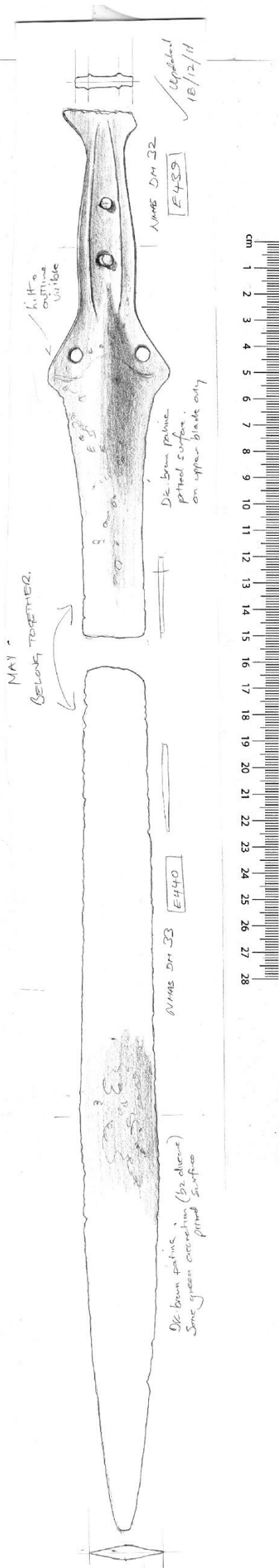
436



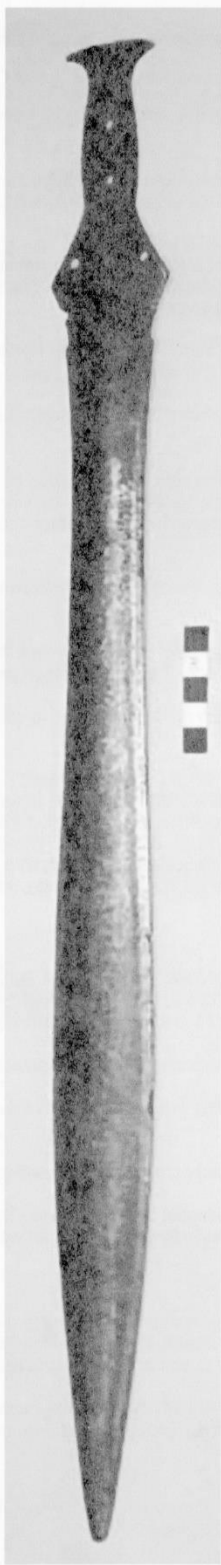
437
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442



439



443

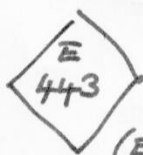


61.2 x 5.2 x 0.6.

HARLAND / PENNSYLVANIA MUSEUM

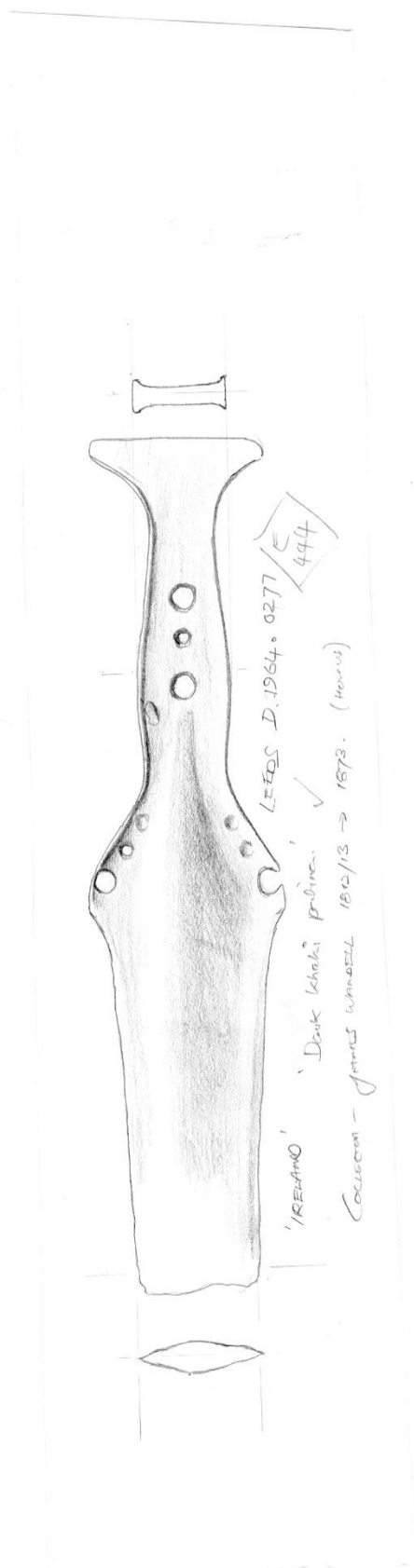
'NORTHMAN' REPROD.

58-104-95-85

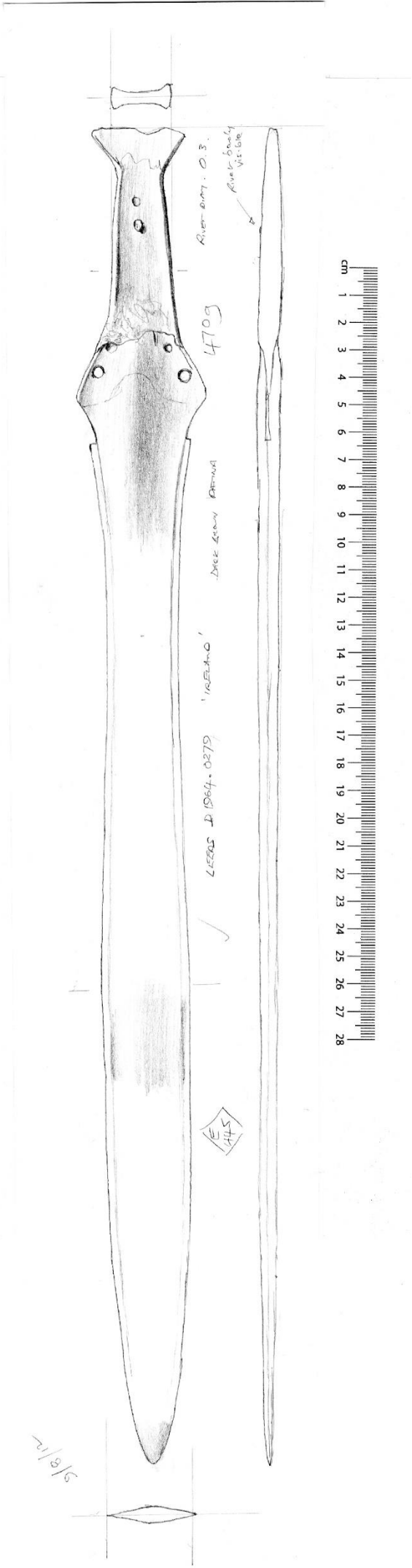


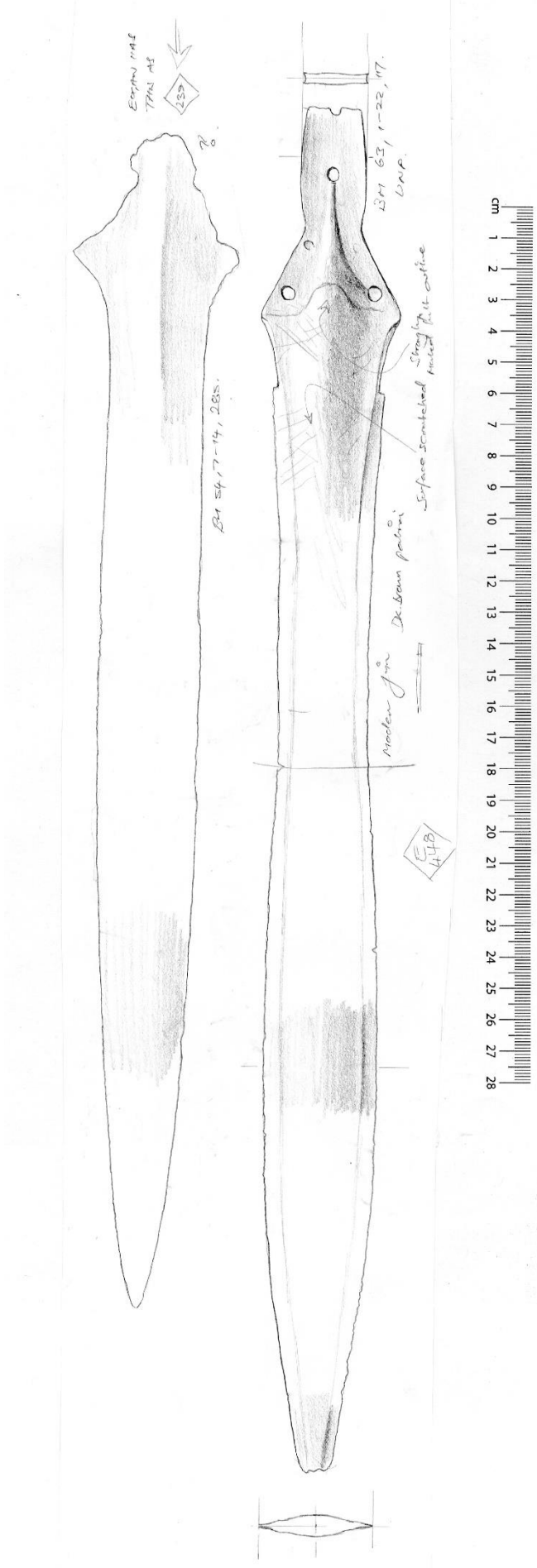
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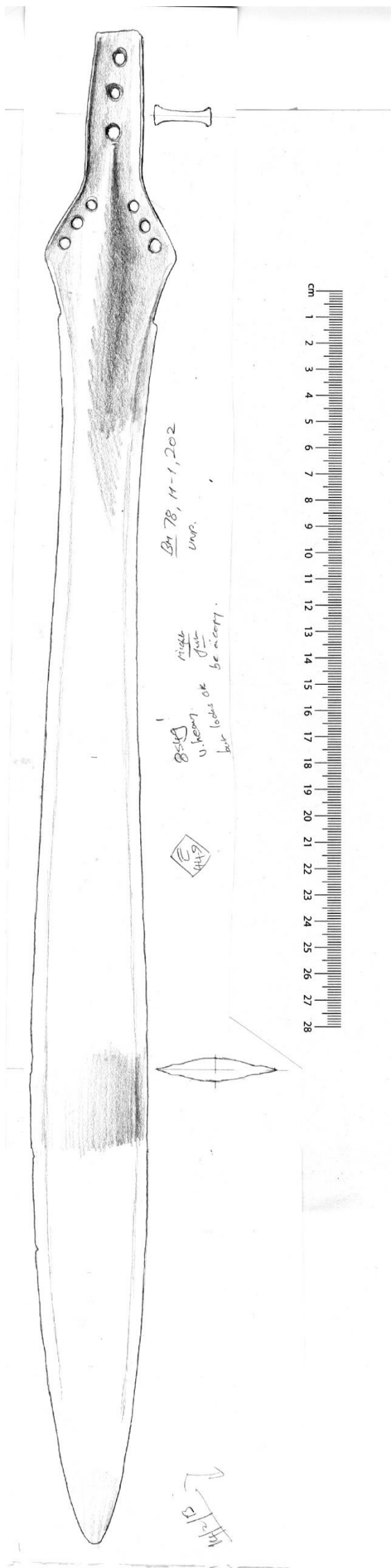


445

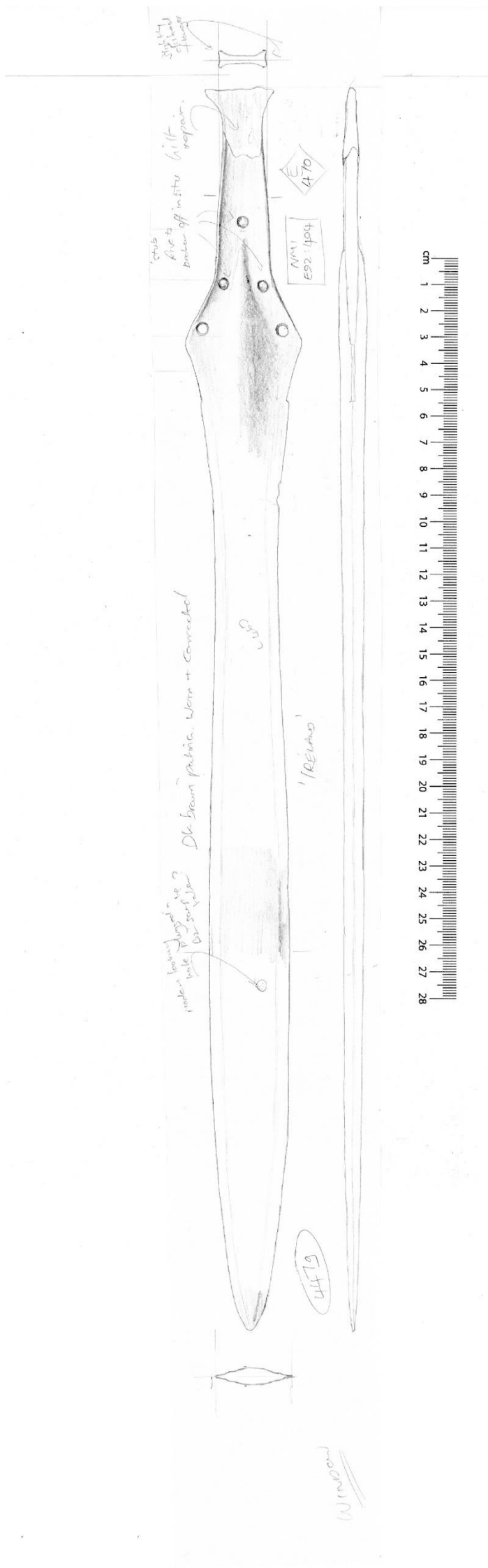




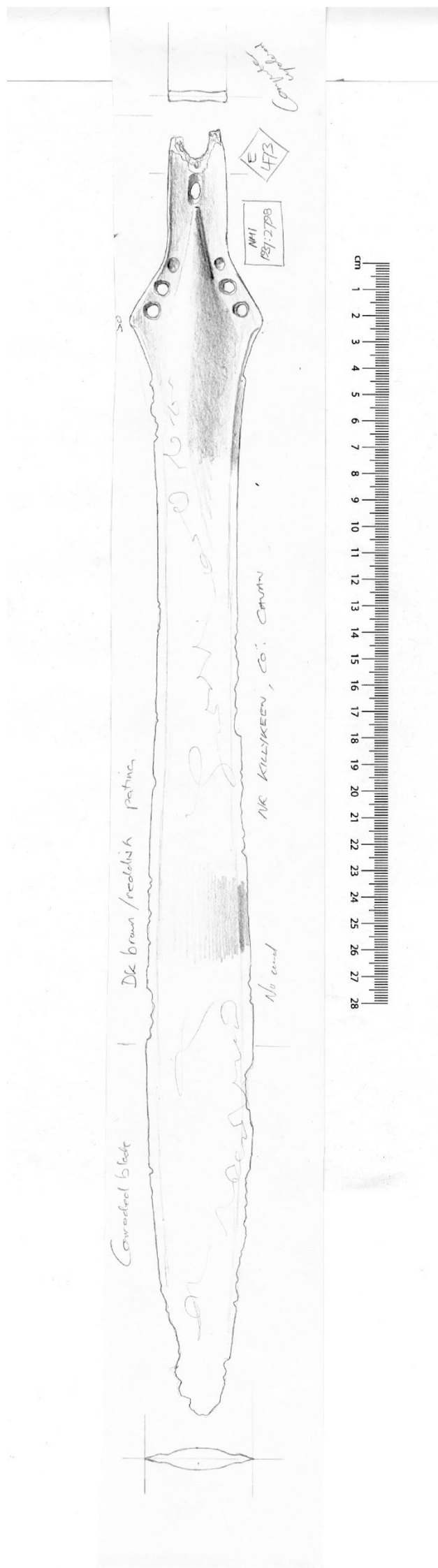
449



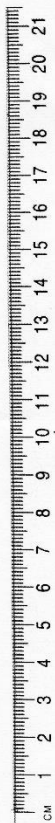
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473



474

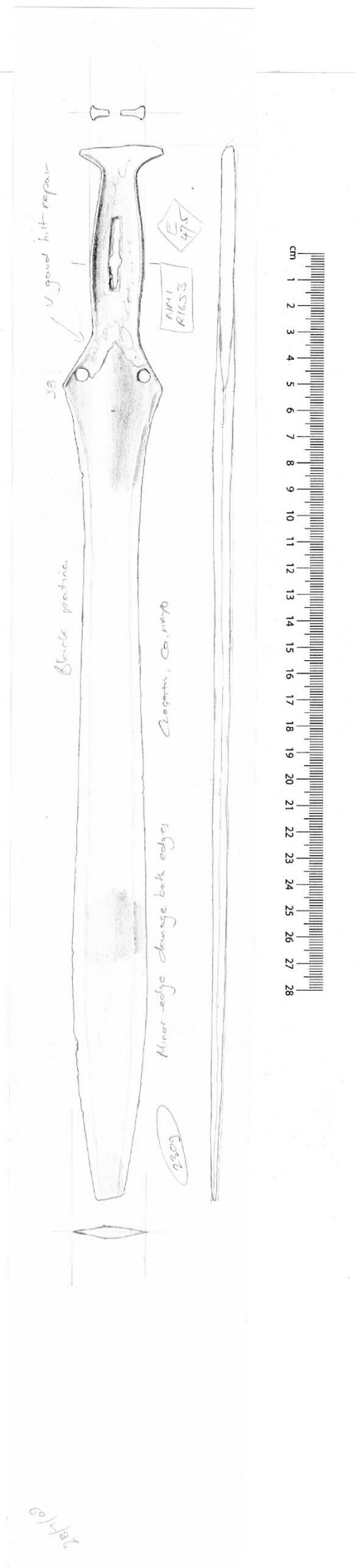


V. Henry B22g

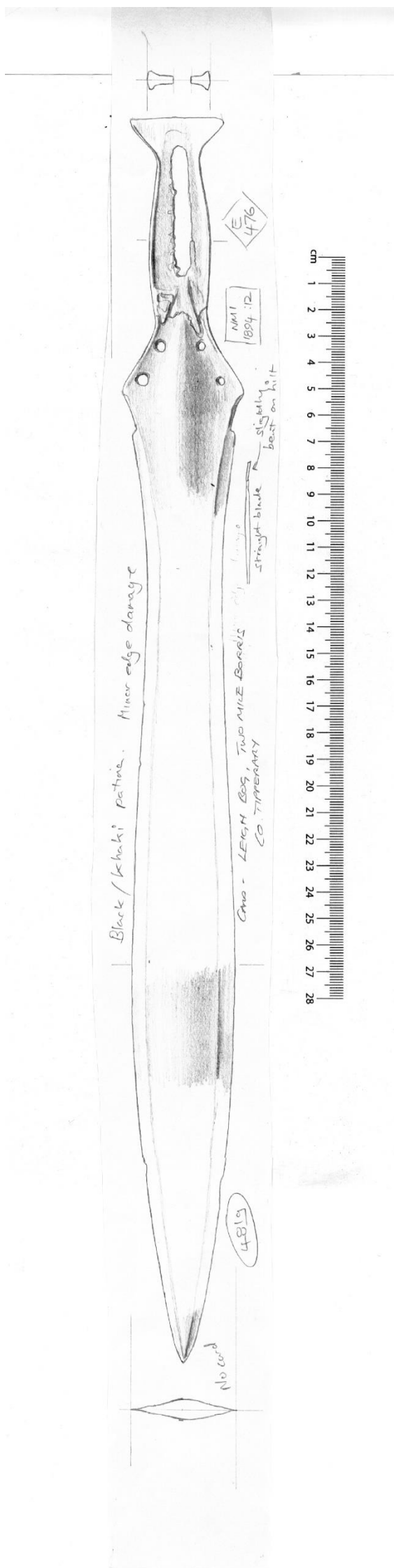


NMI 1906:221. Pale
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Co. 101/1906

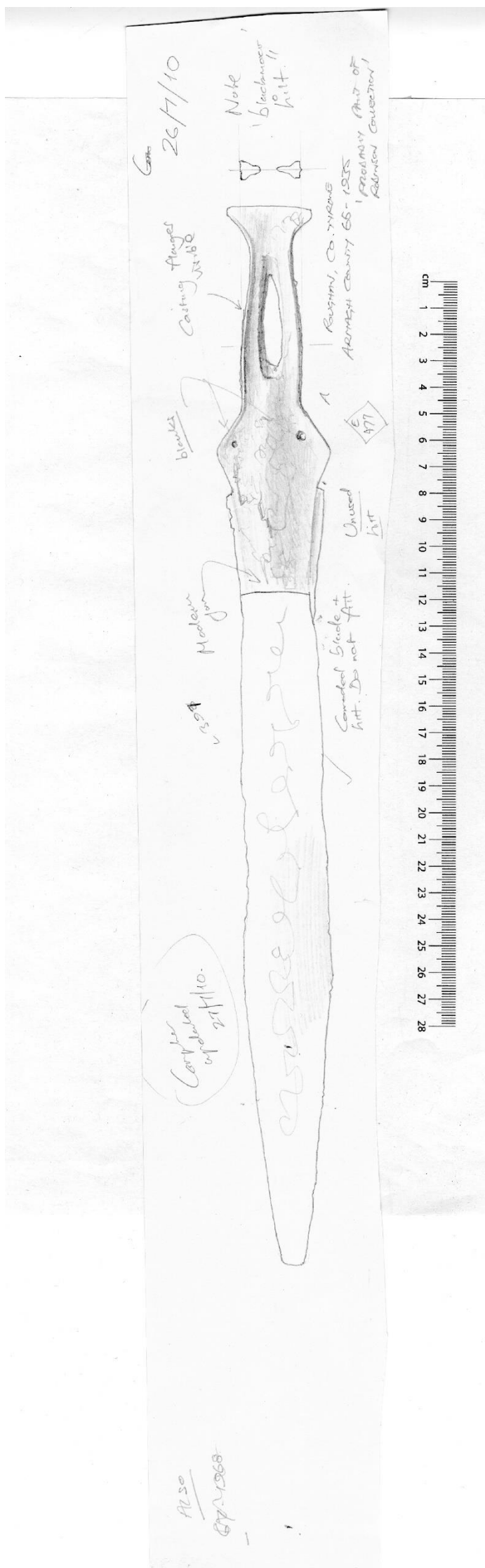
475



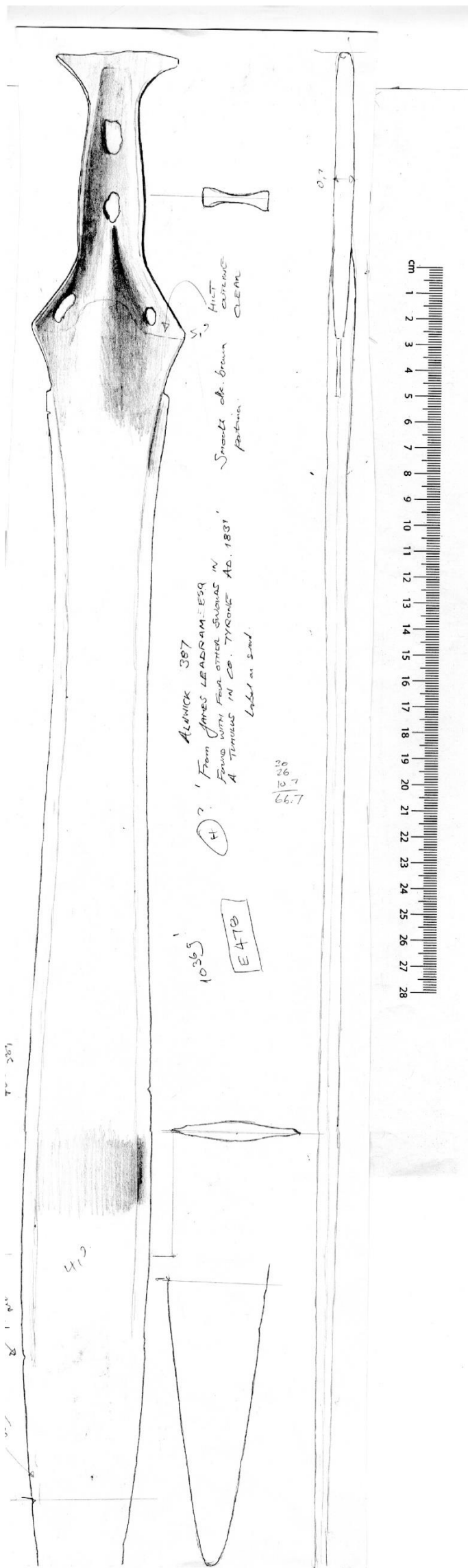
476



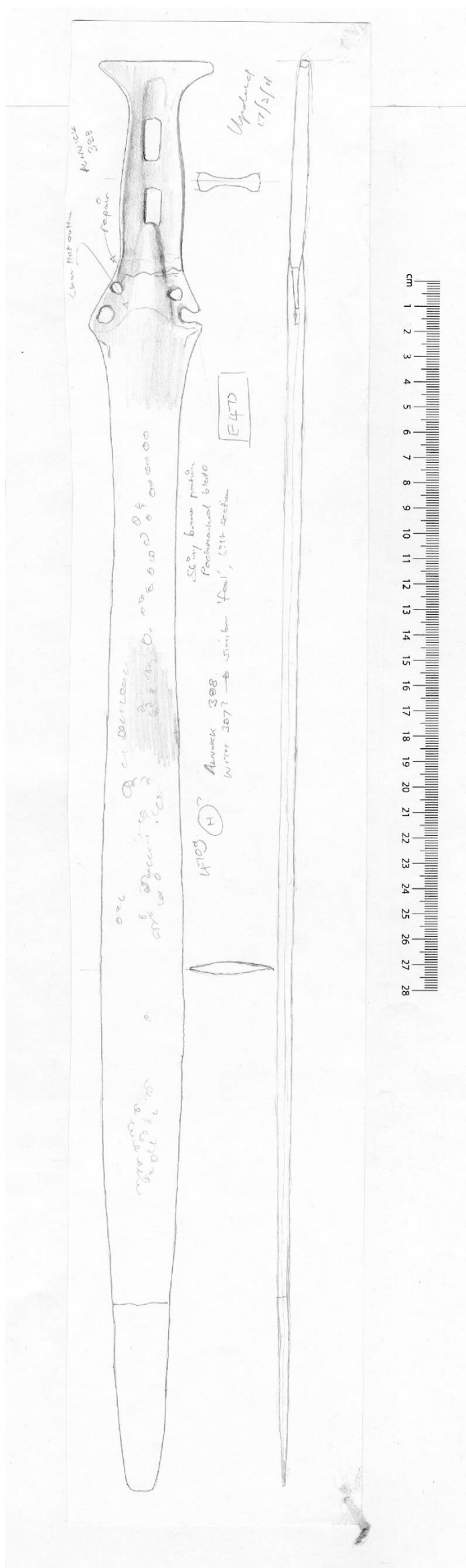
477



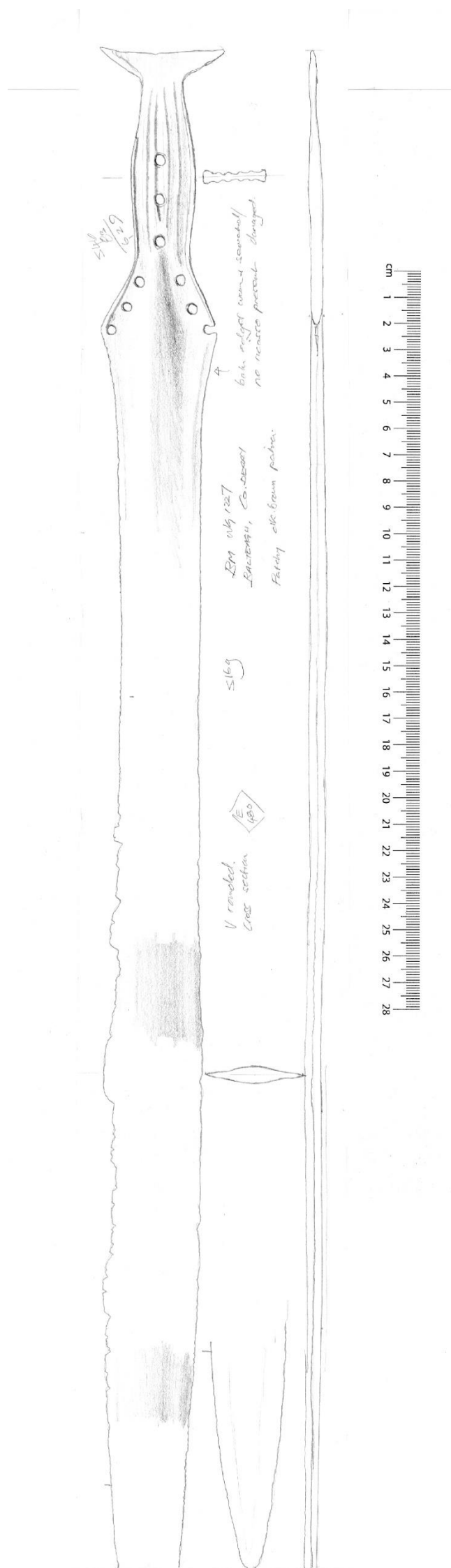
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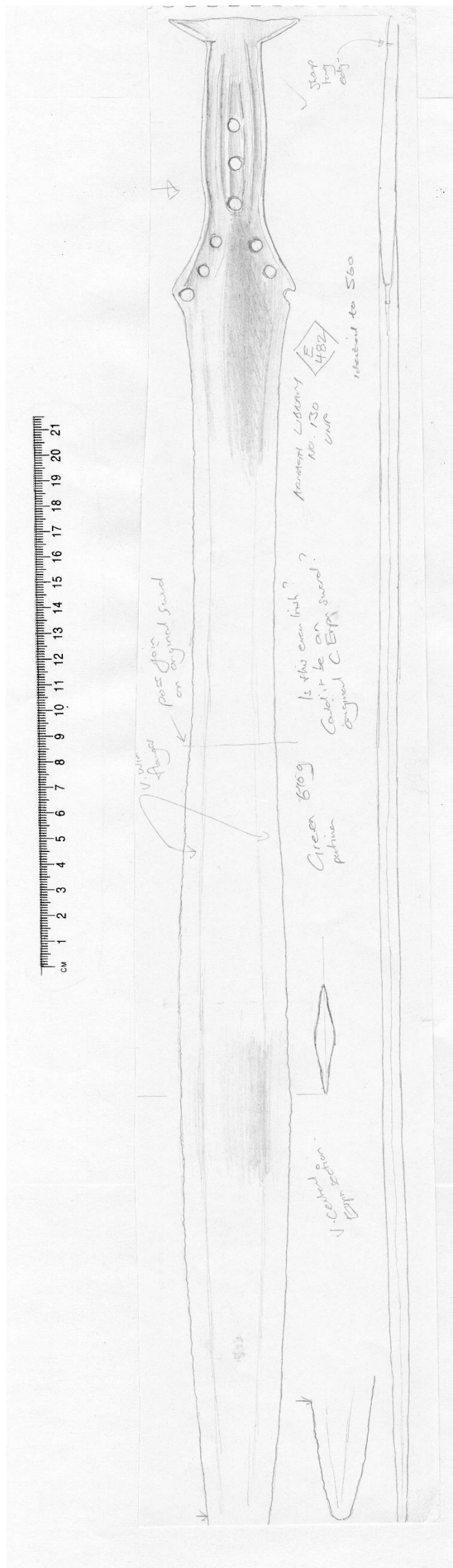
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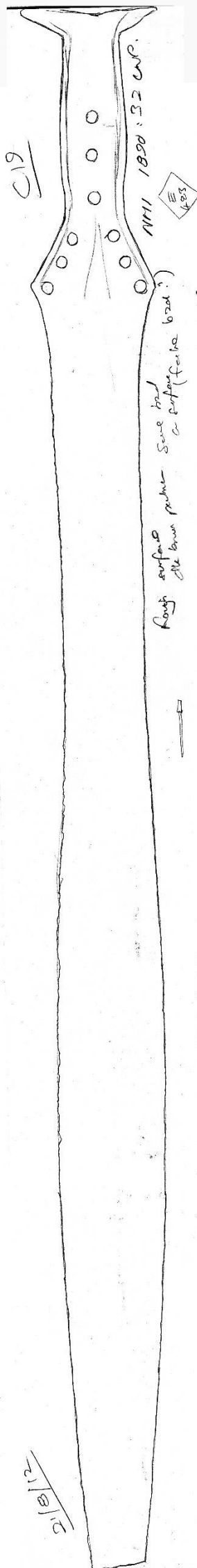


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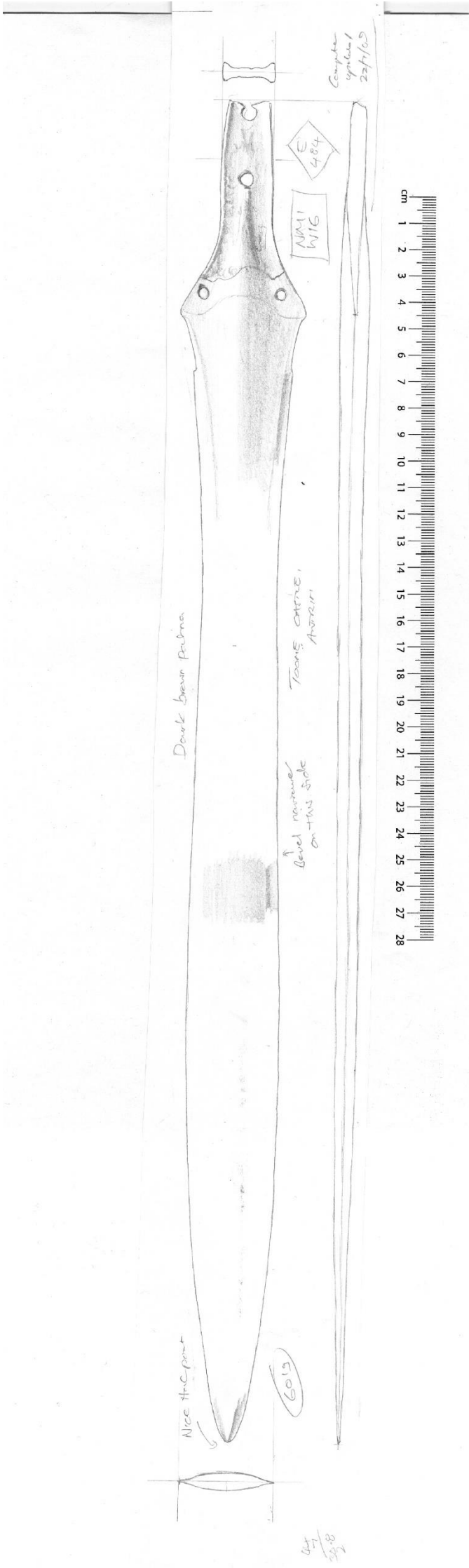


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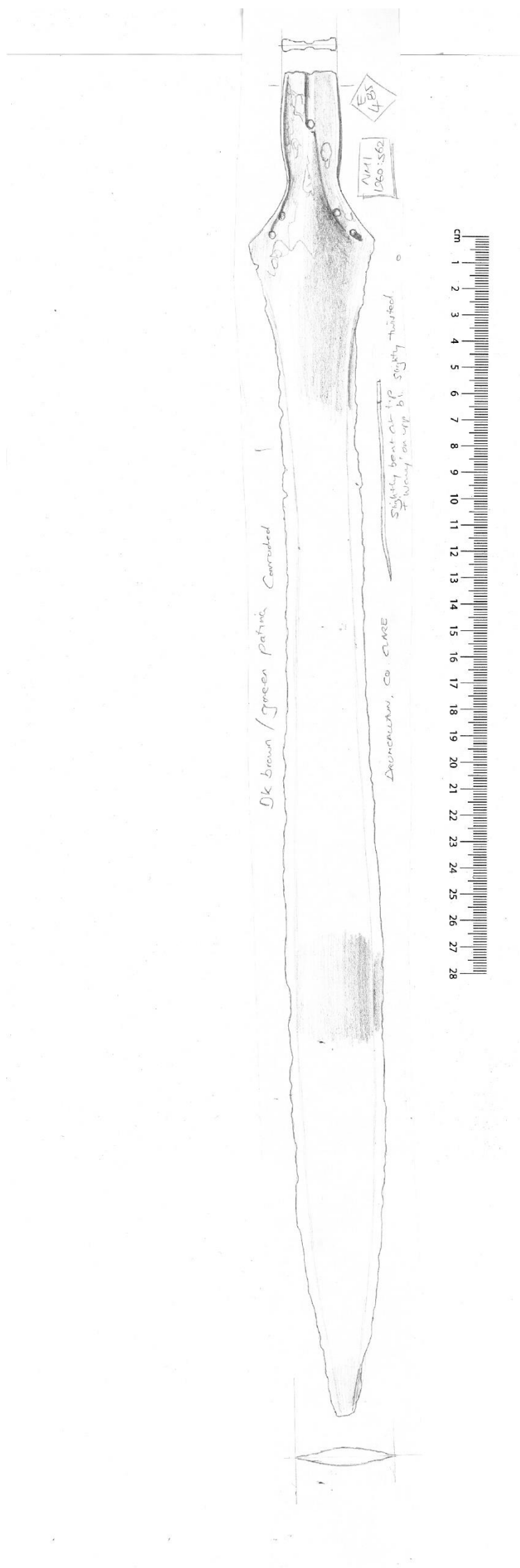


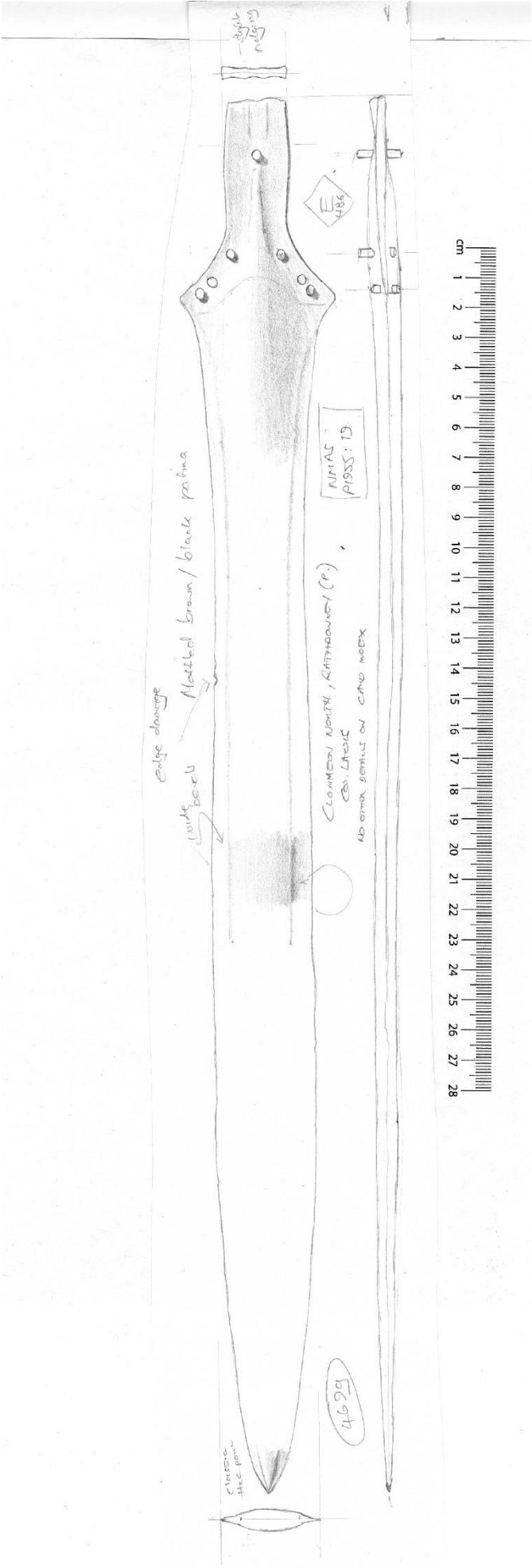


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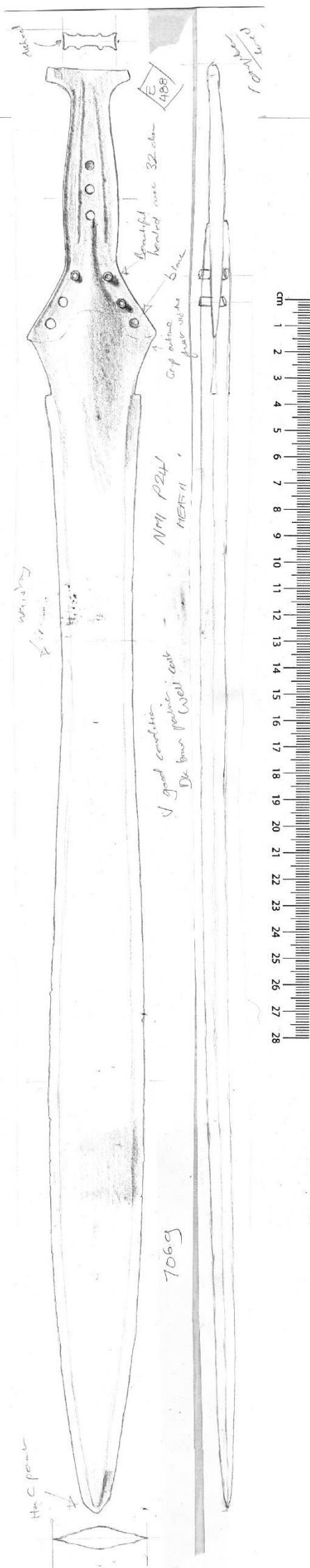


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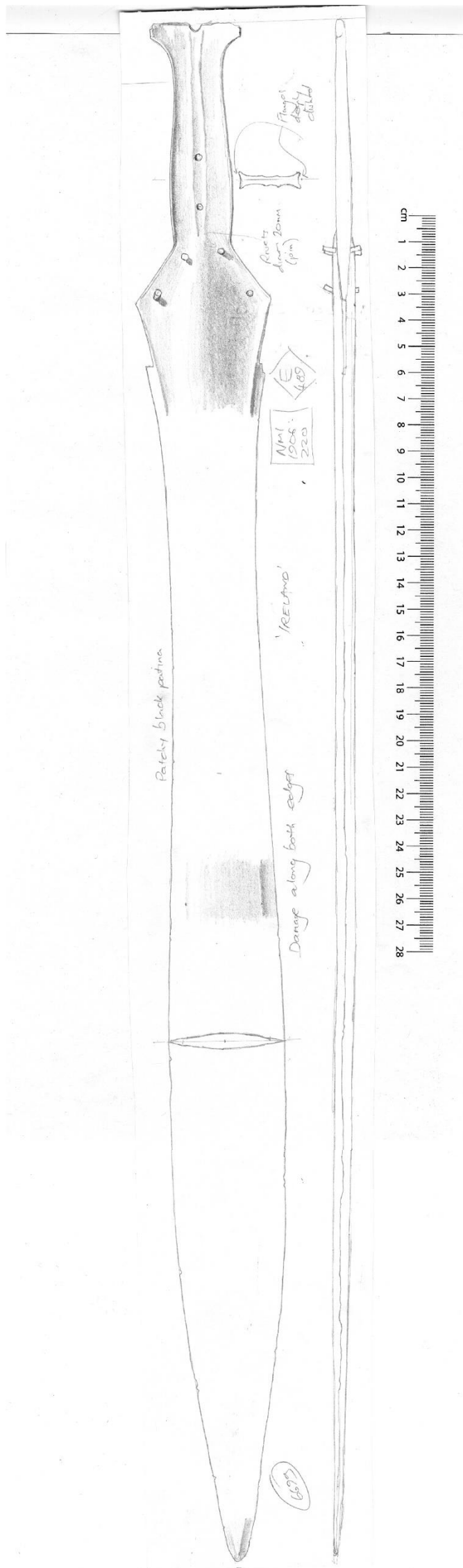




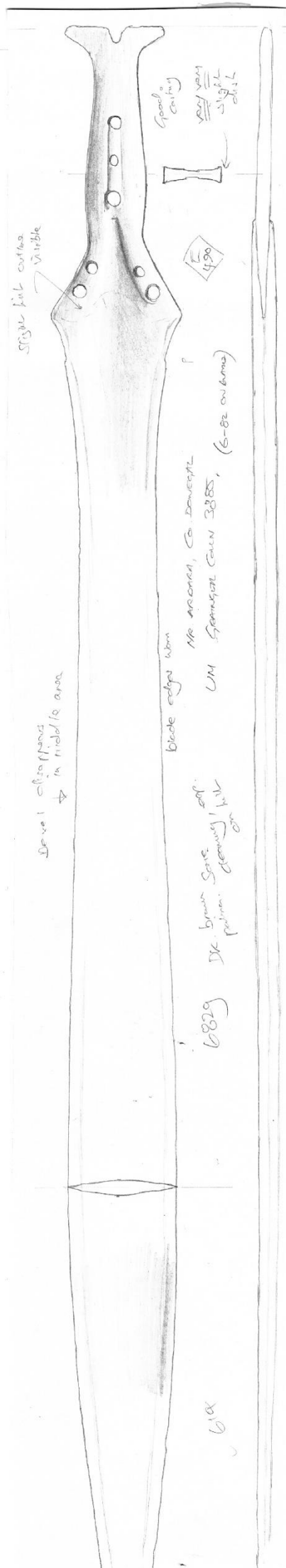
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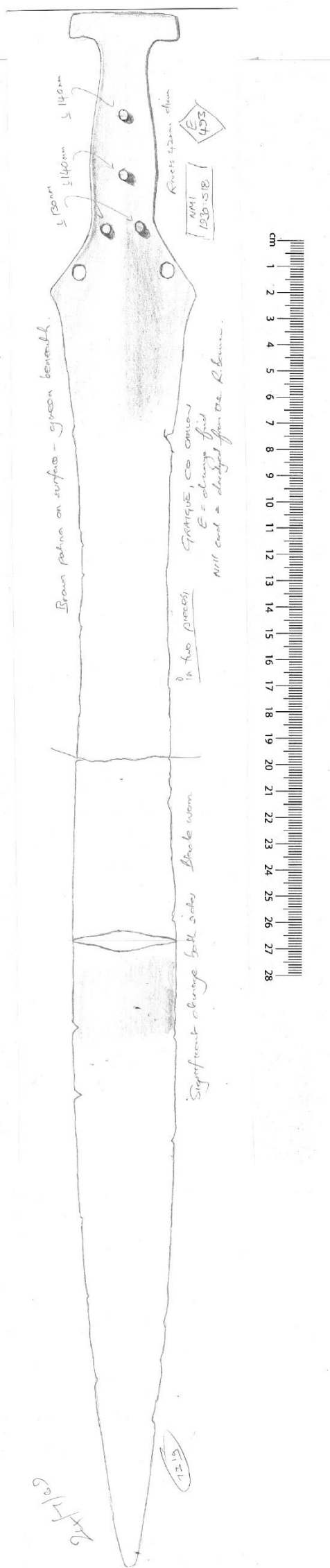


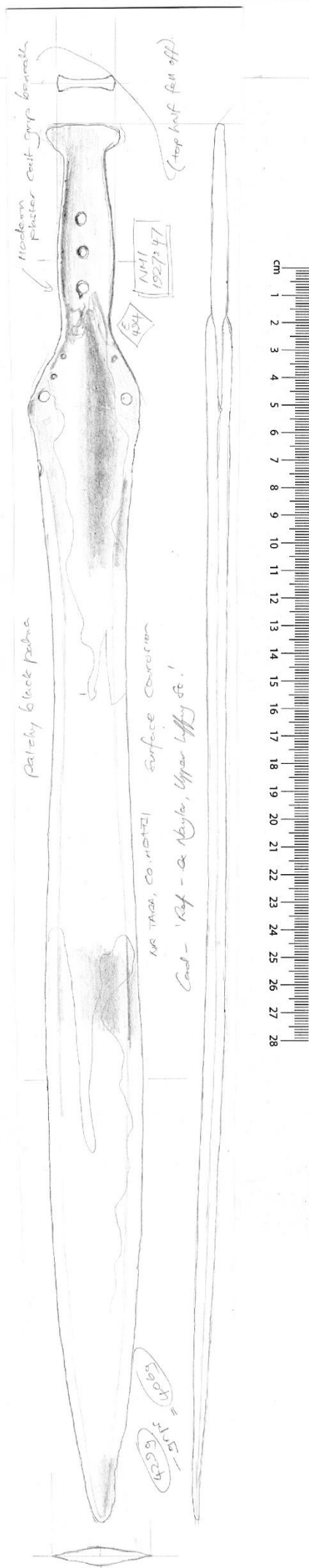
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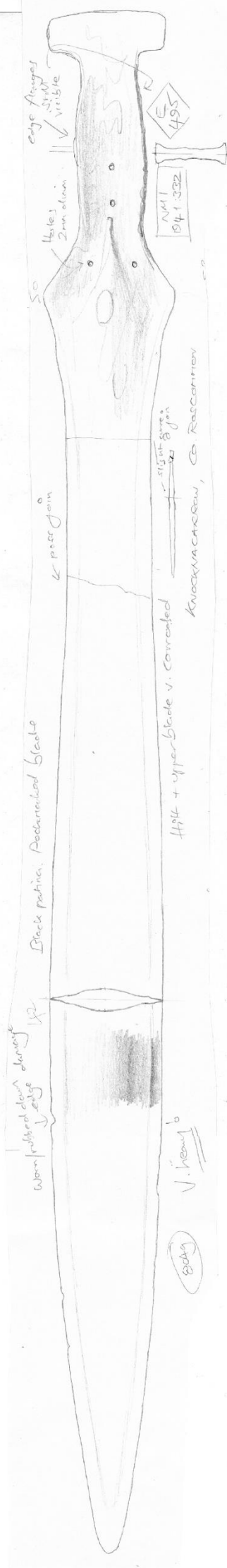
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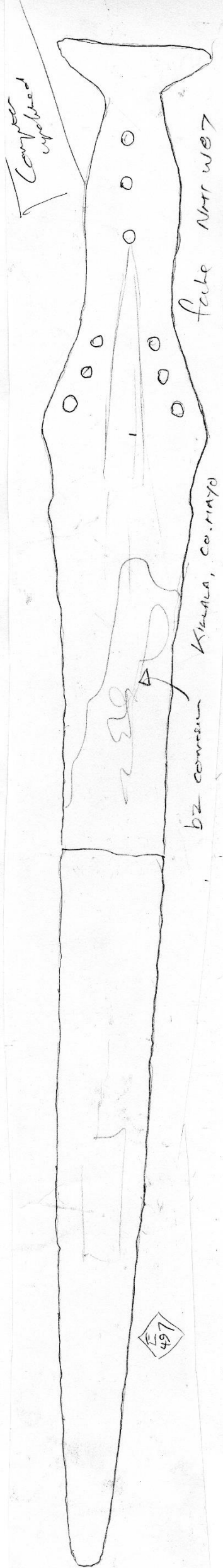
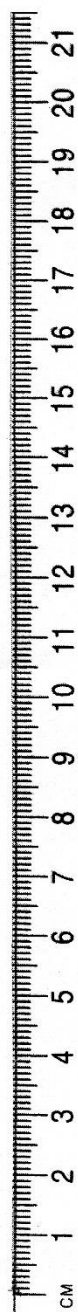


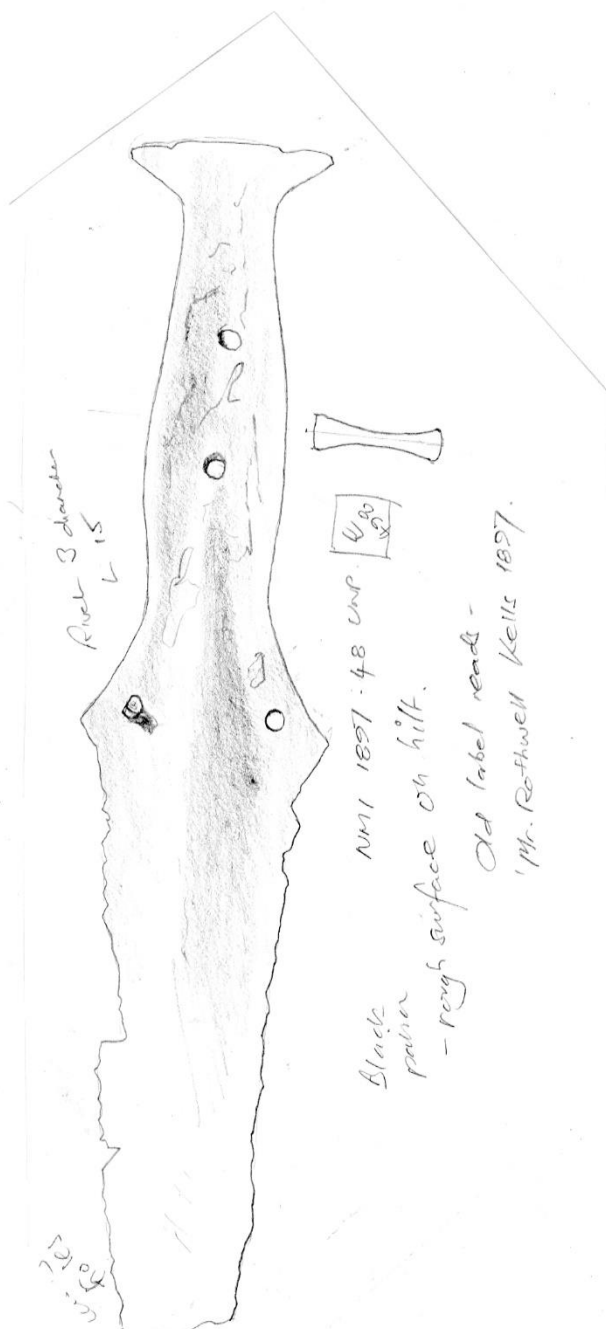
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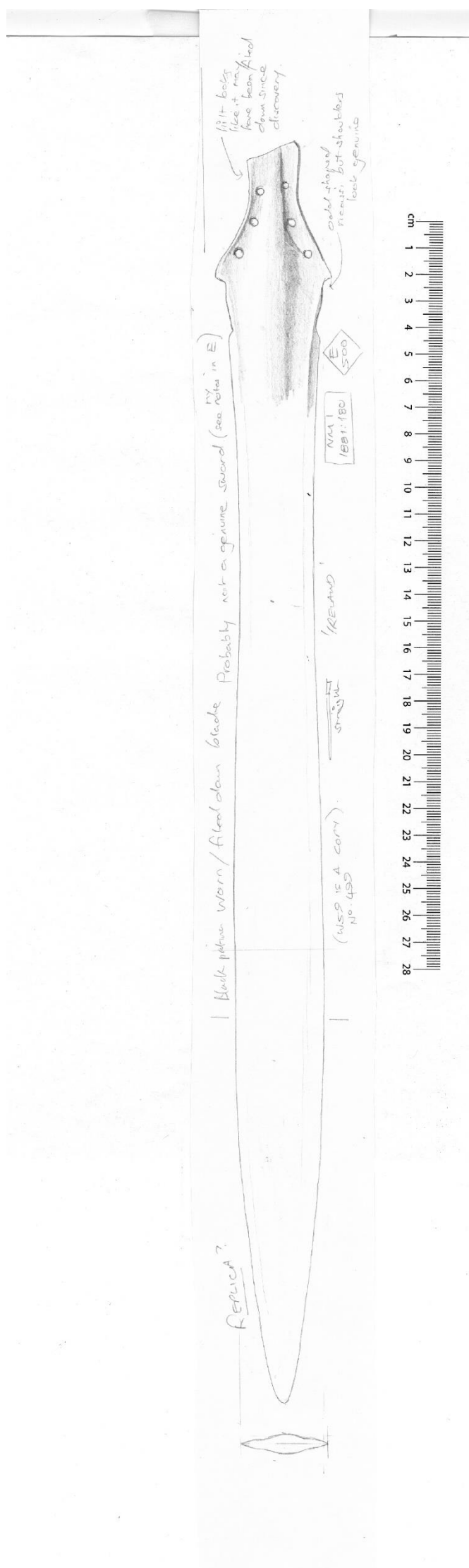


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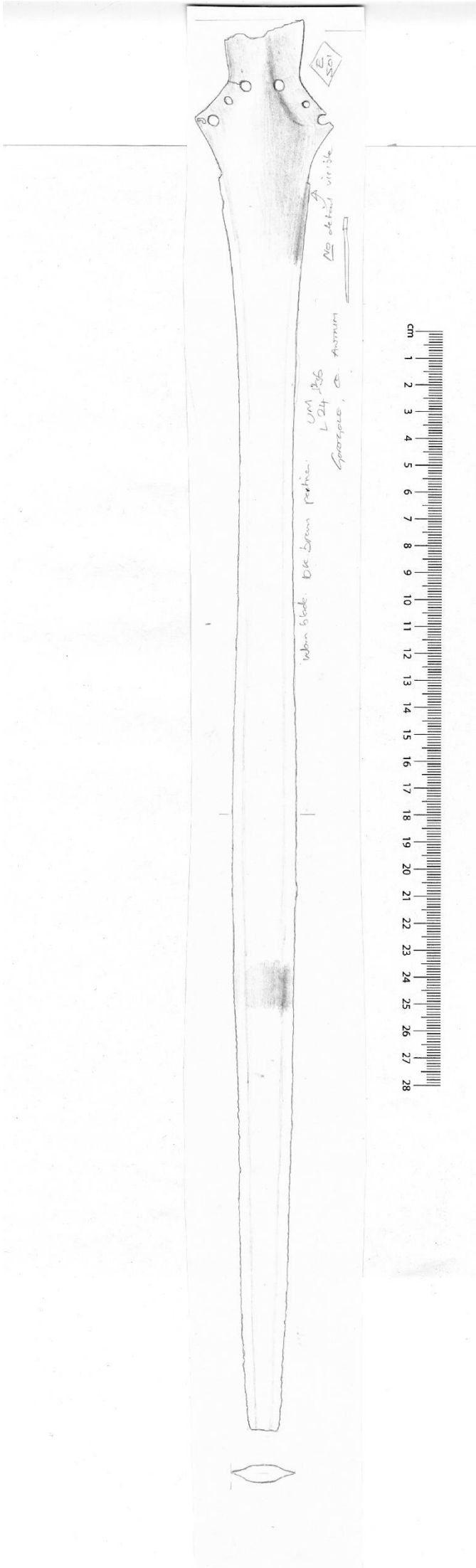




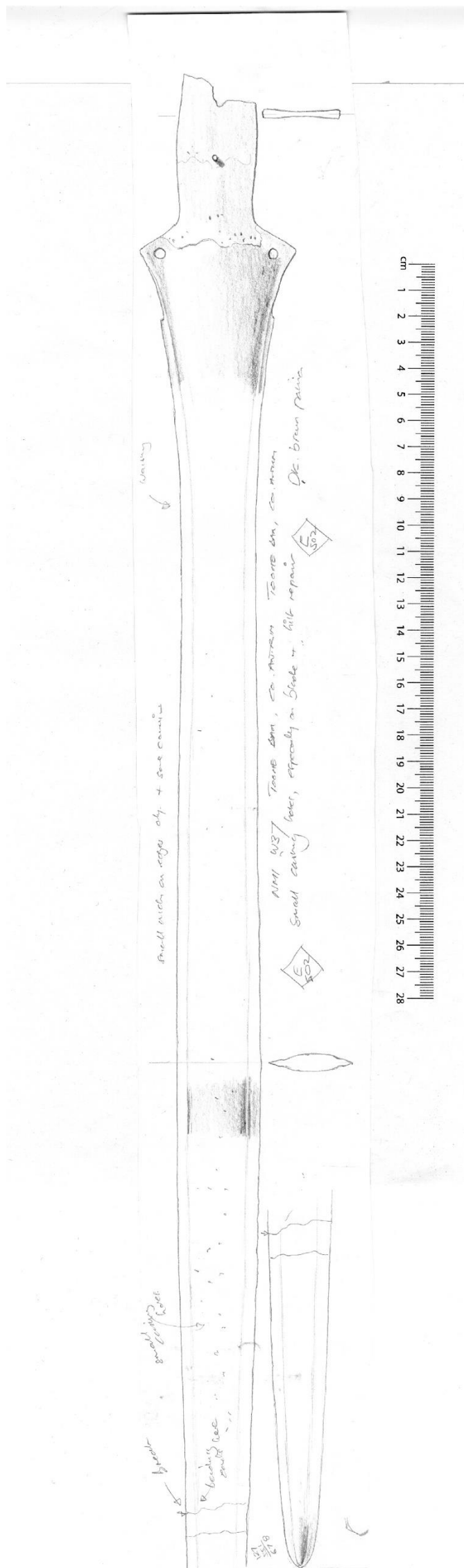
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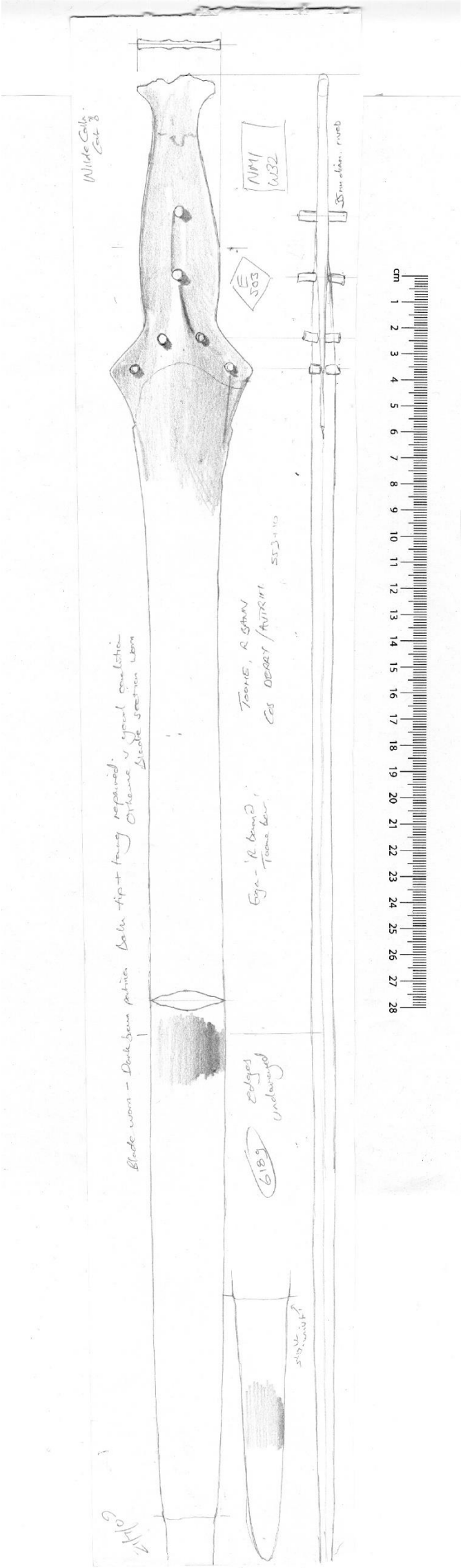


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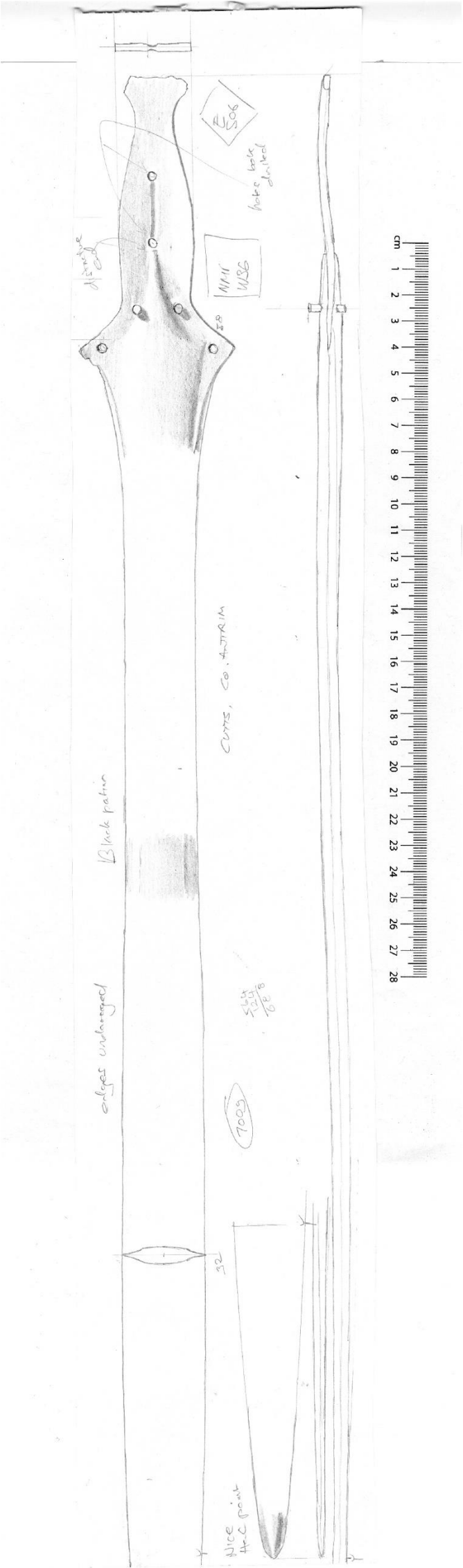


502

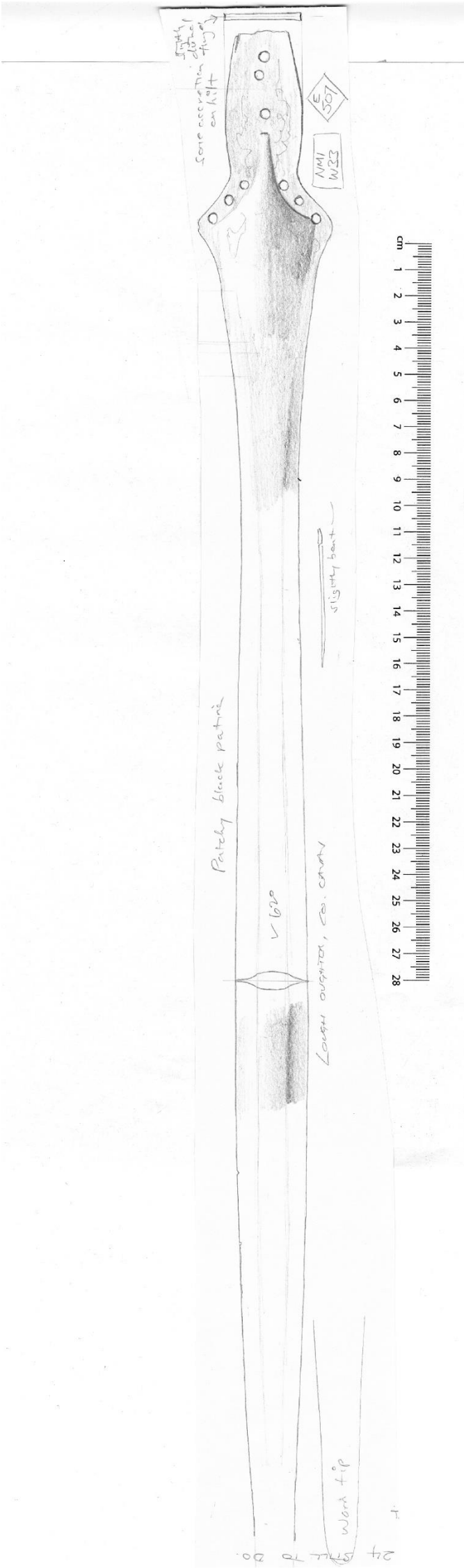


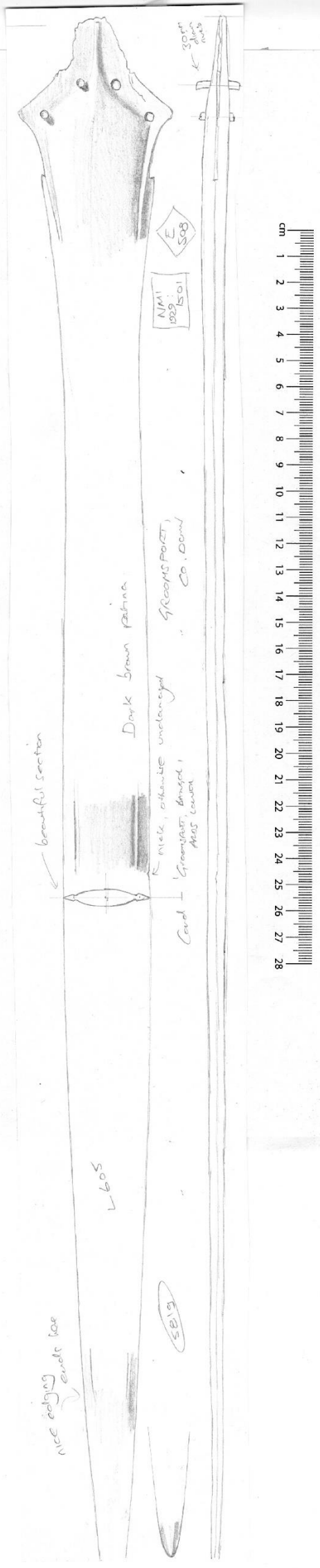


506

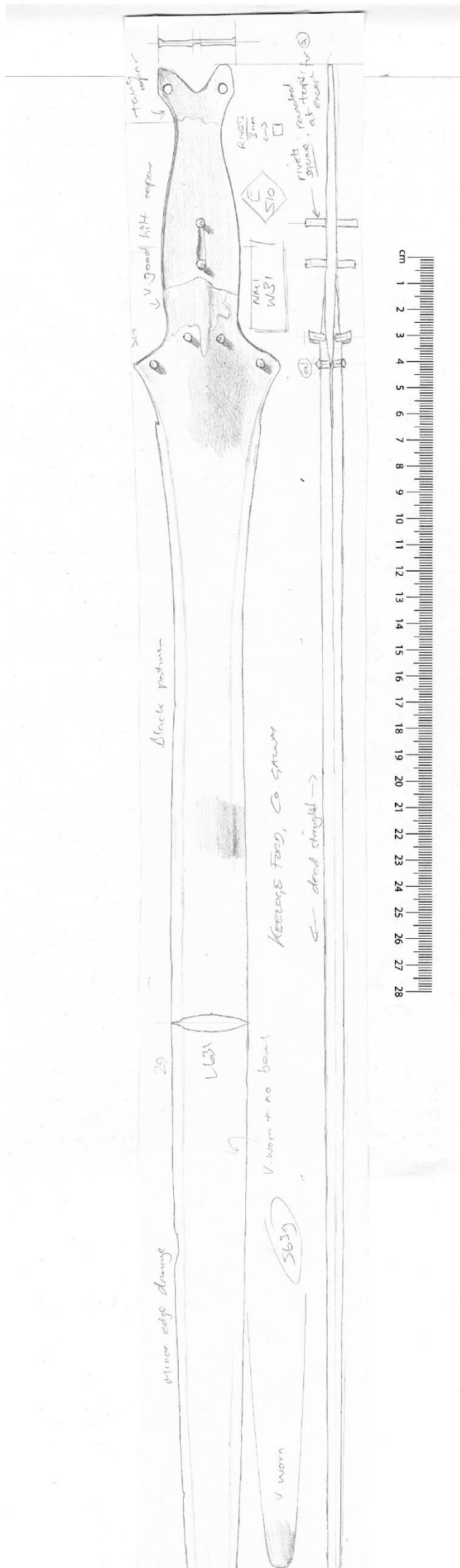


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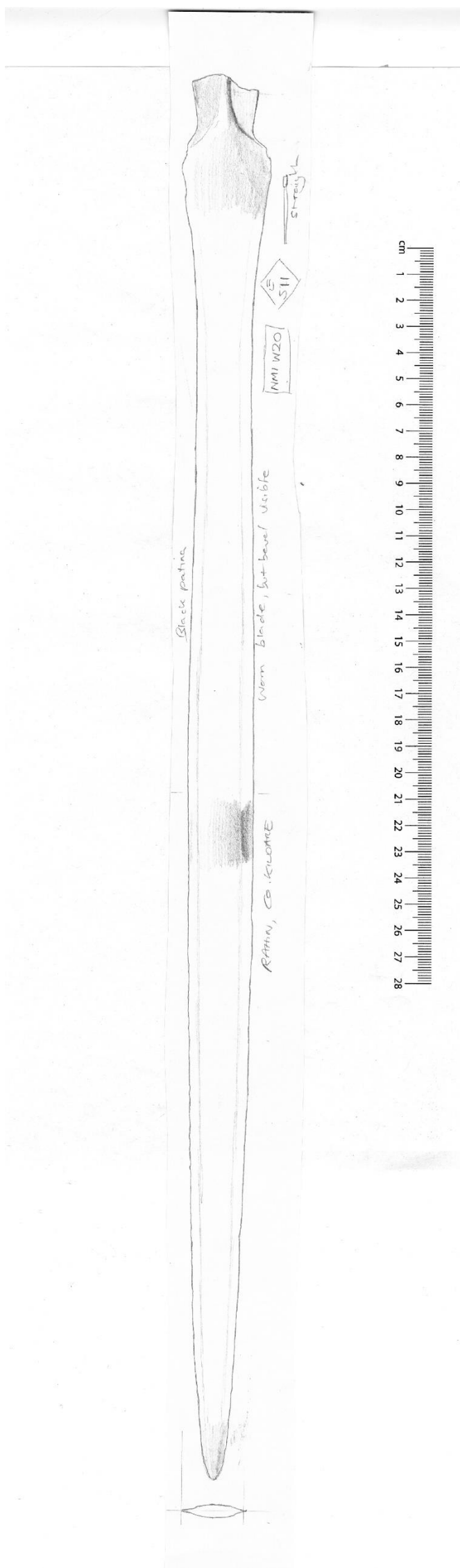


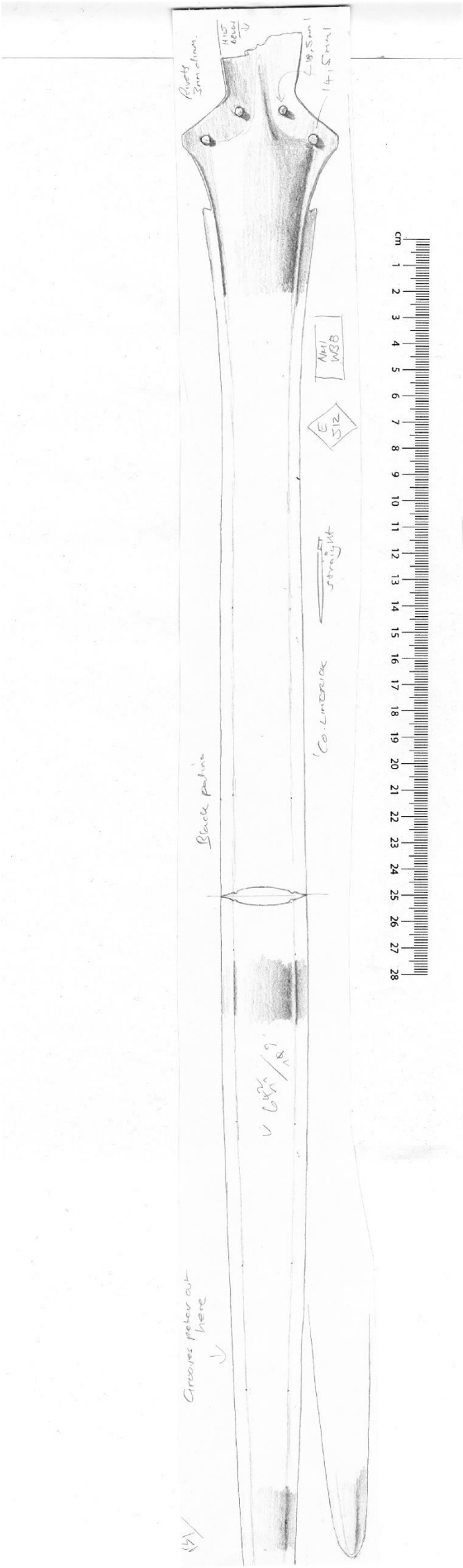


510

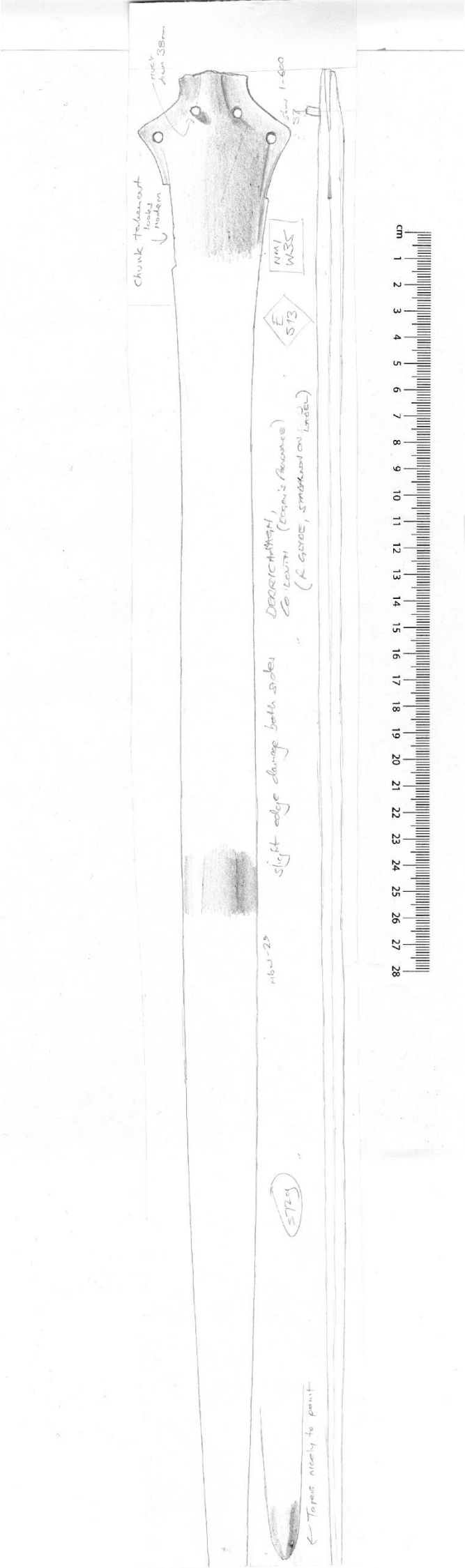


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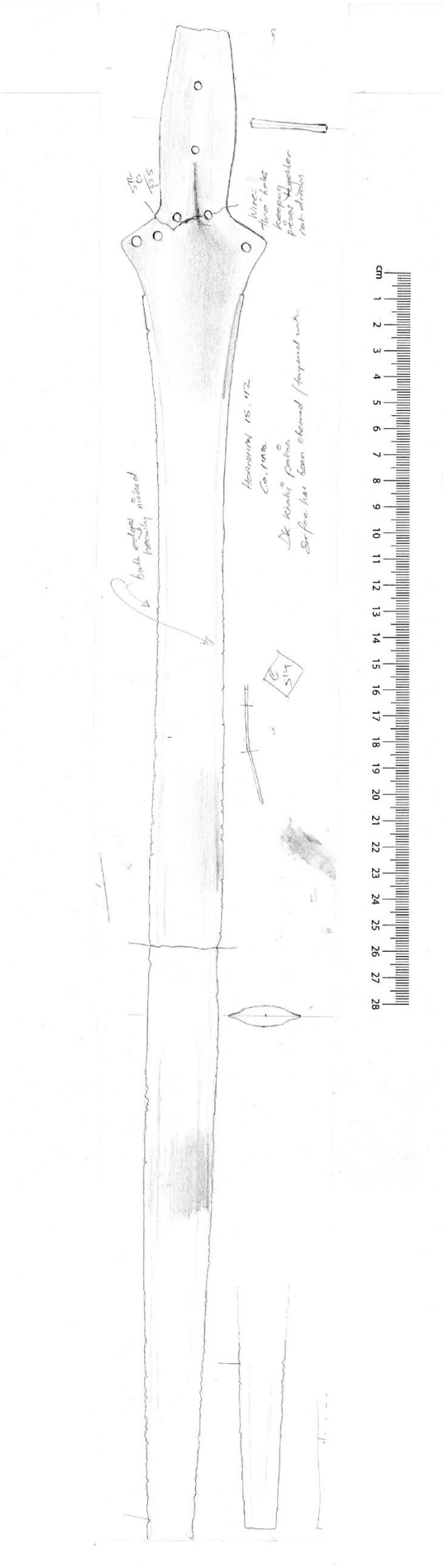




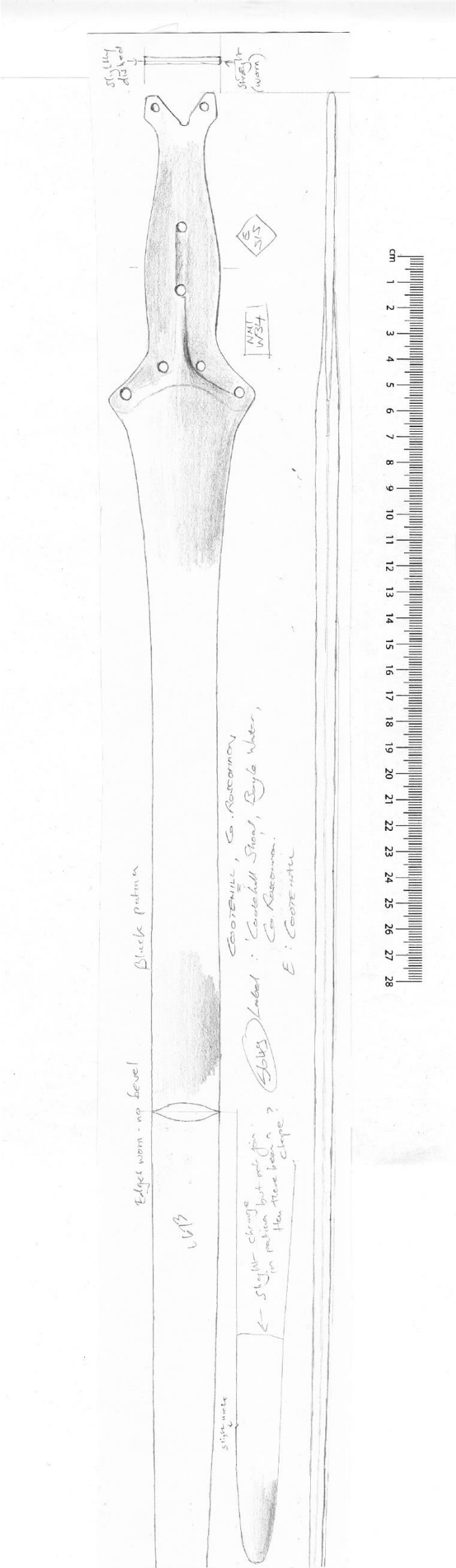
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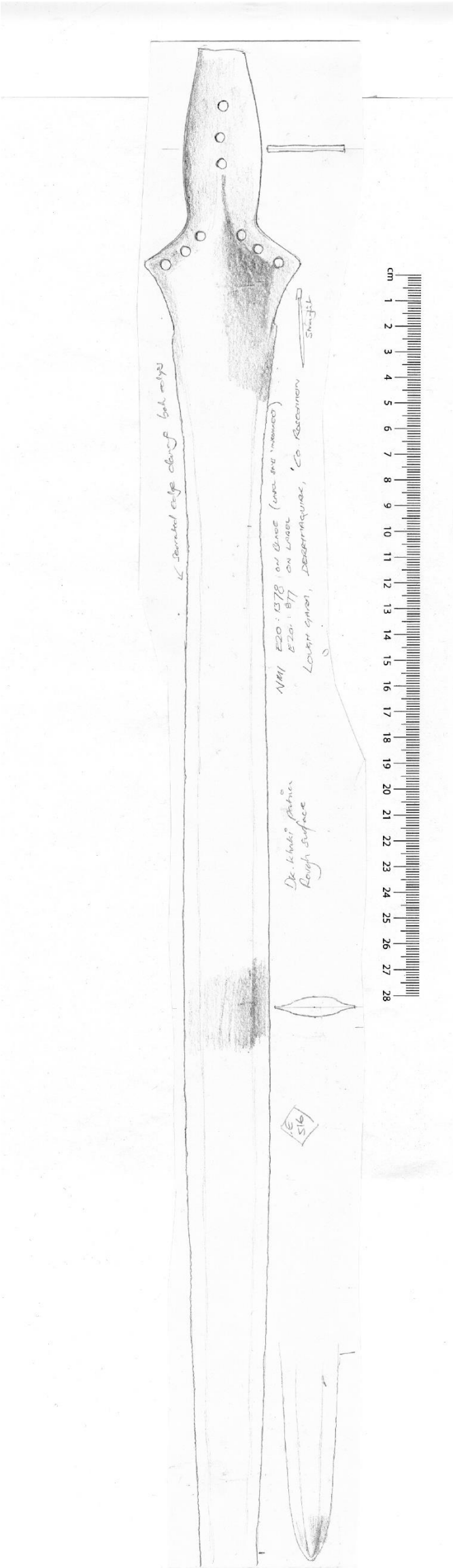
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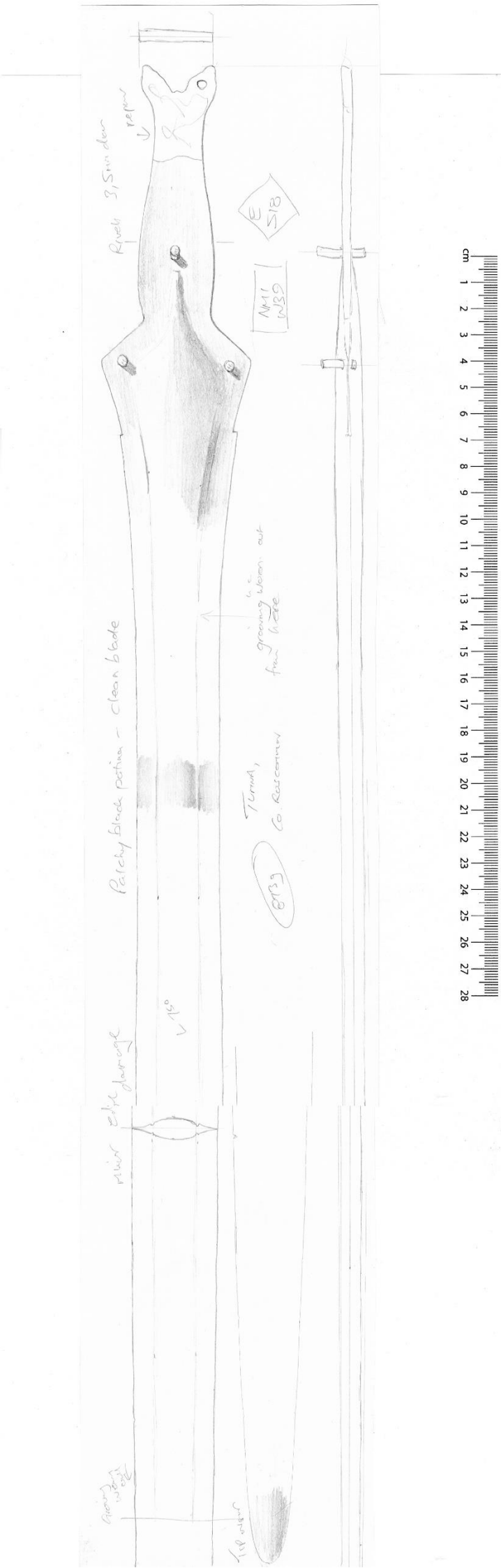


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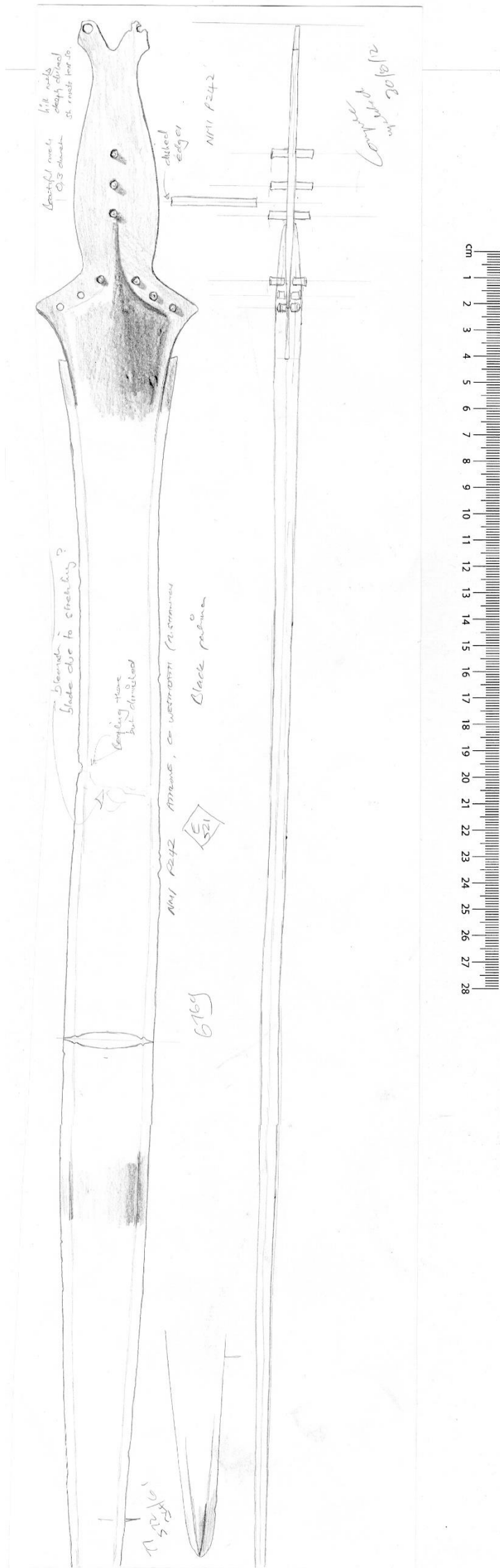


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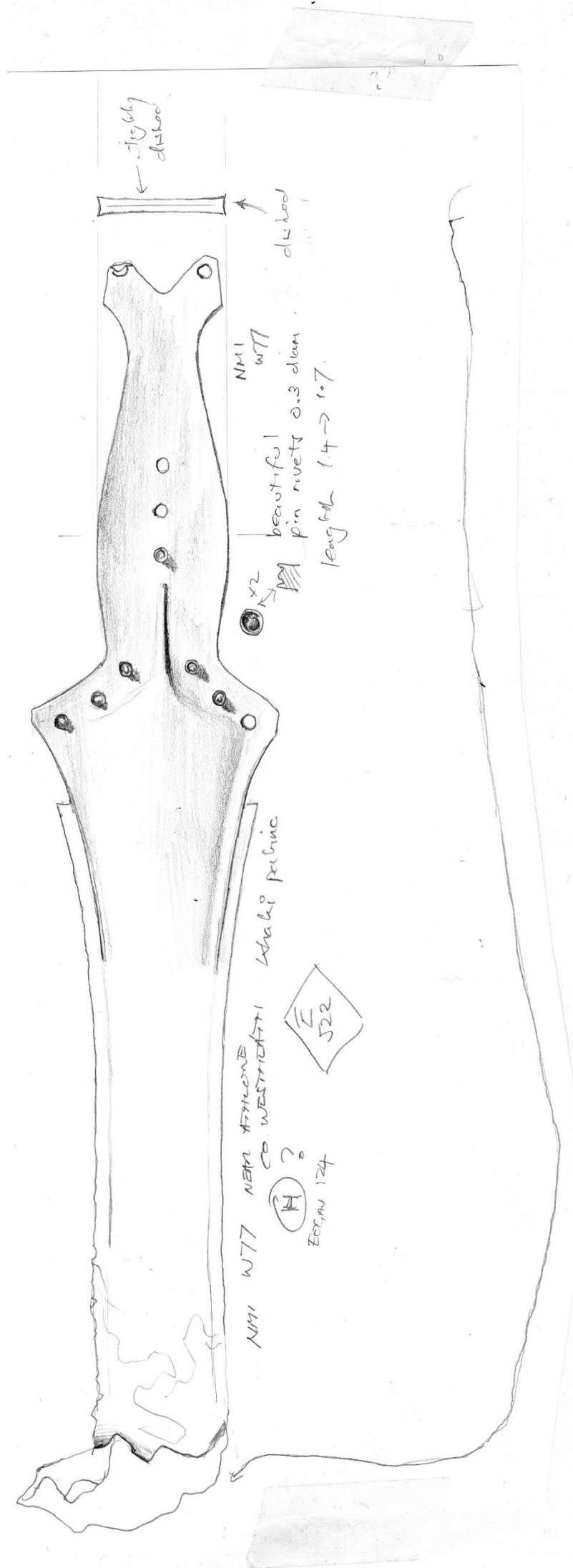




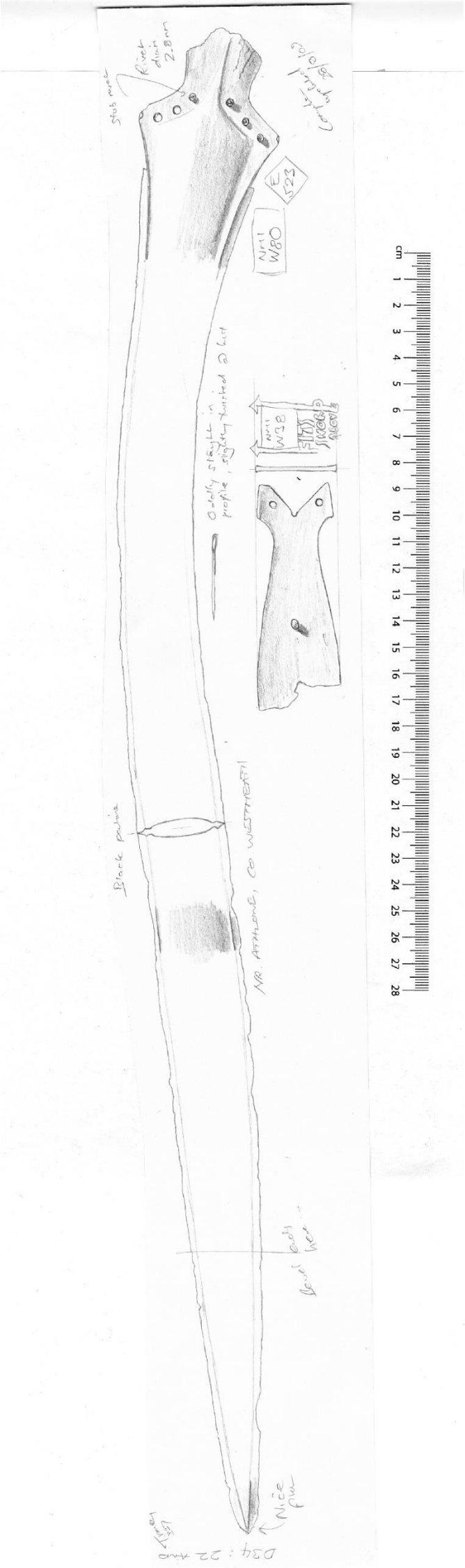
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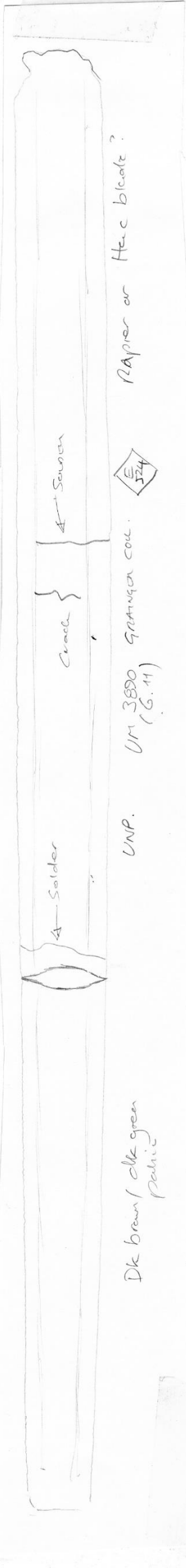
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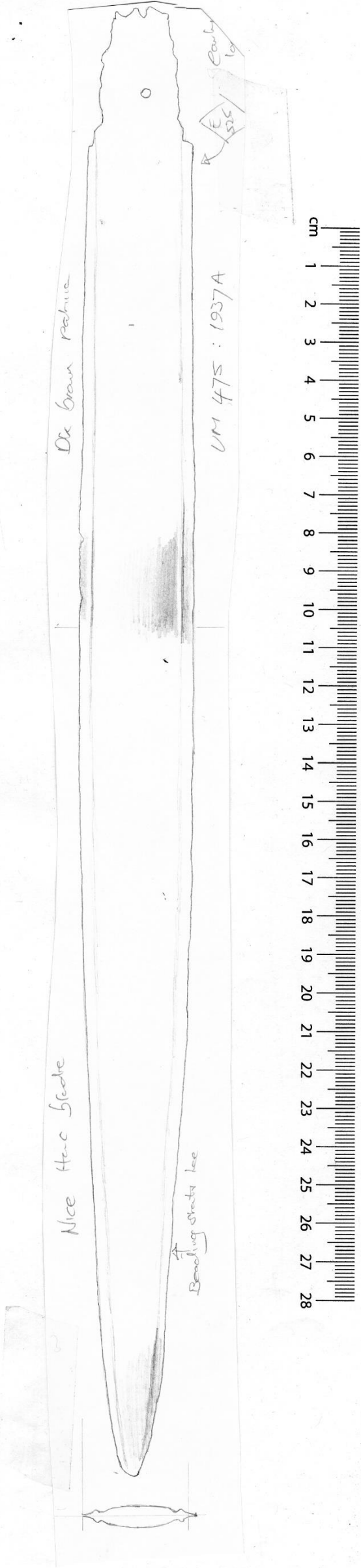
523



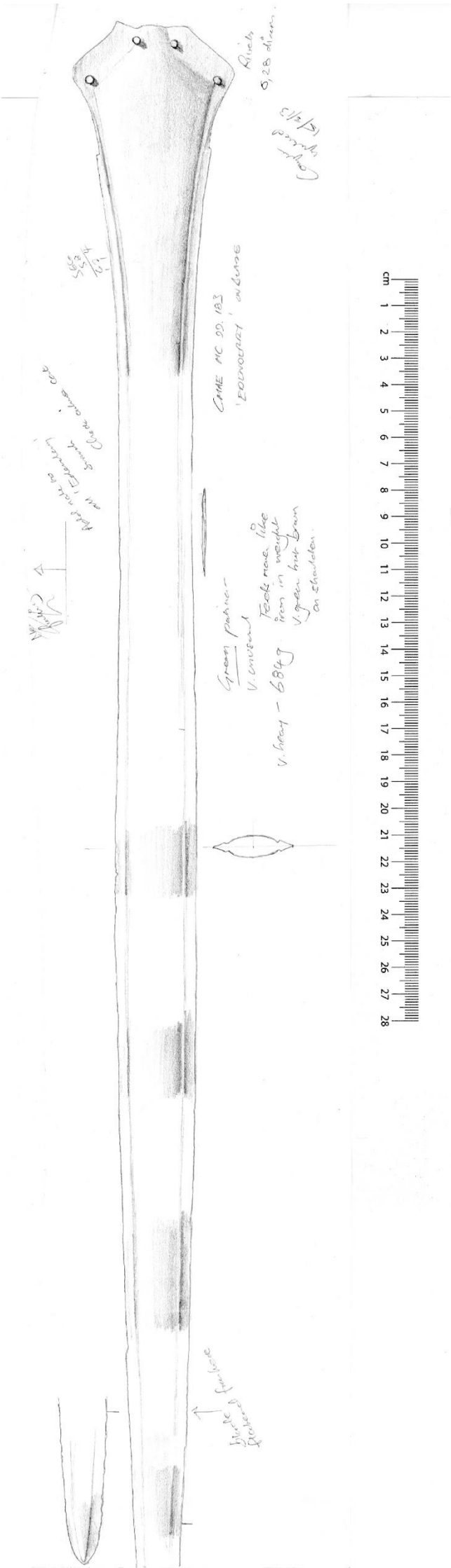
524

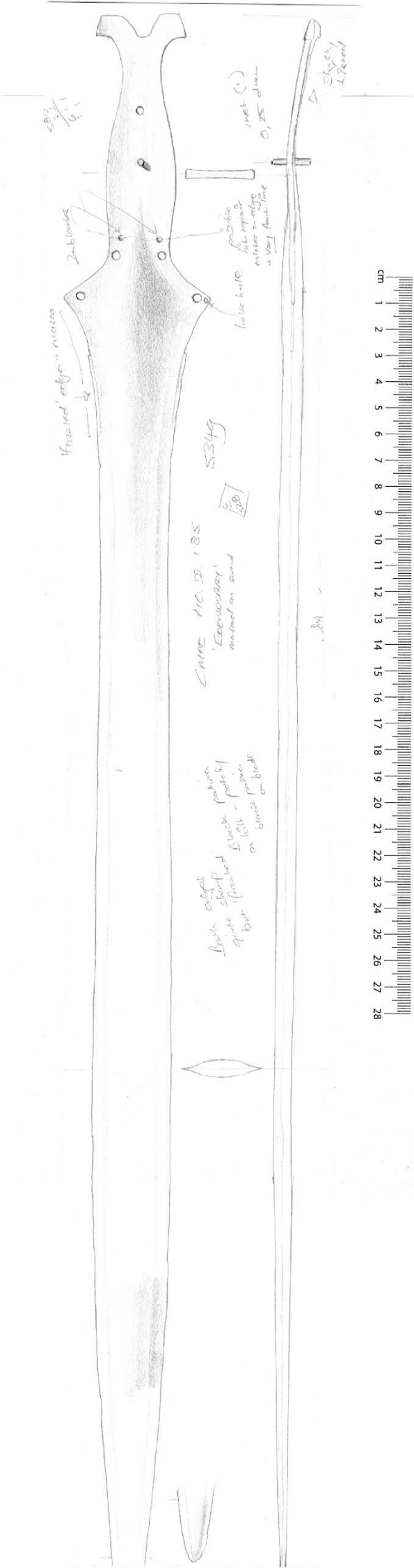


525

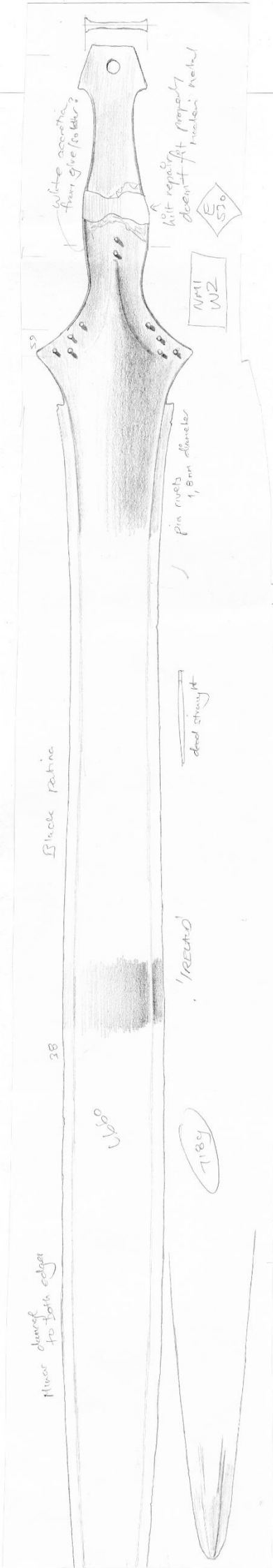


527

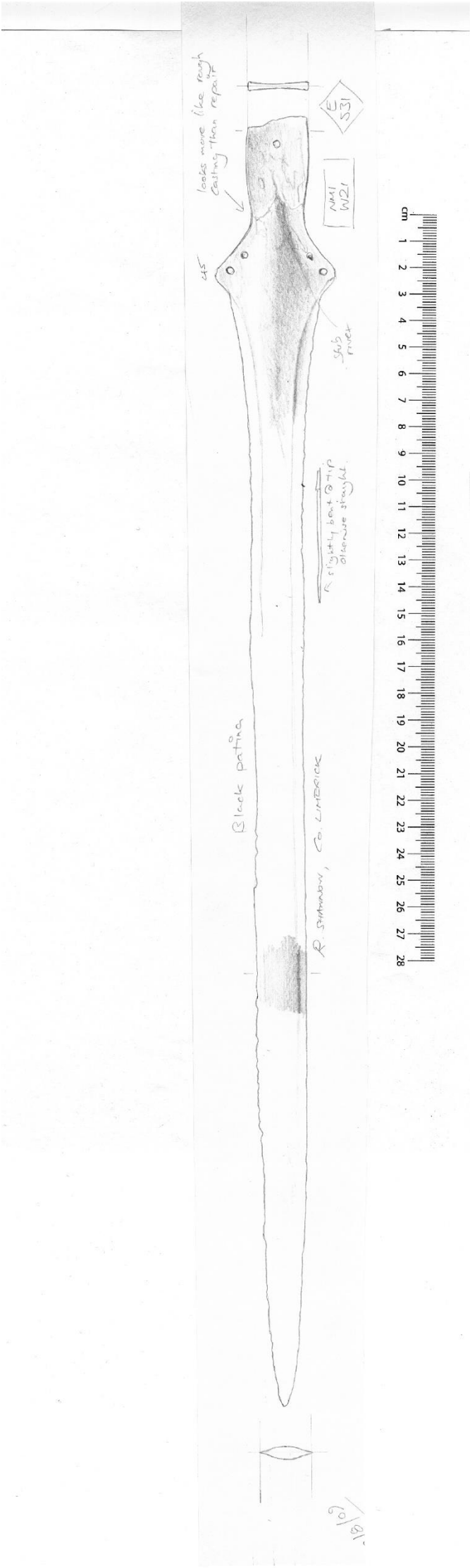


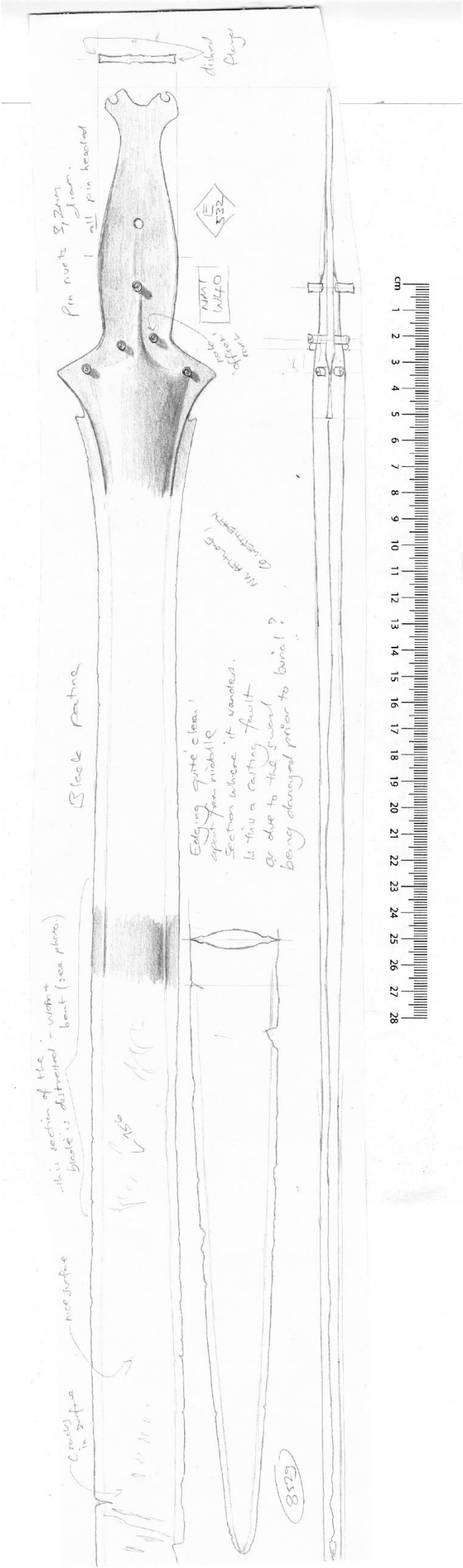


530

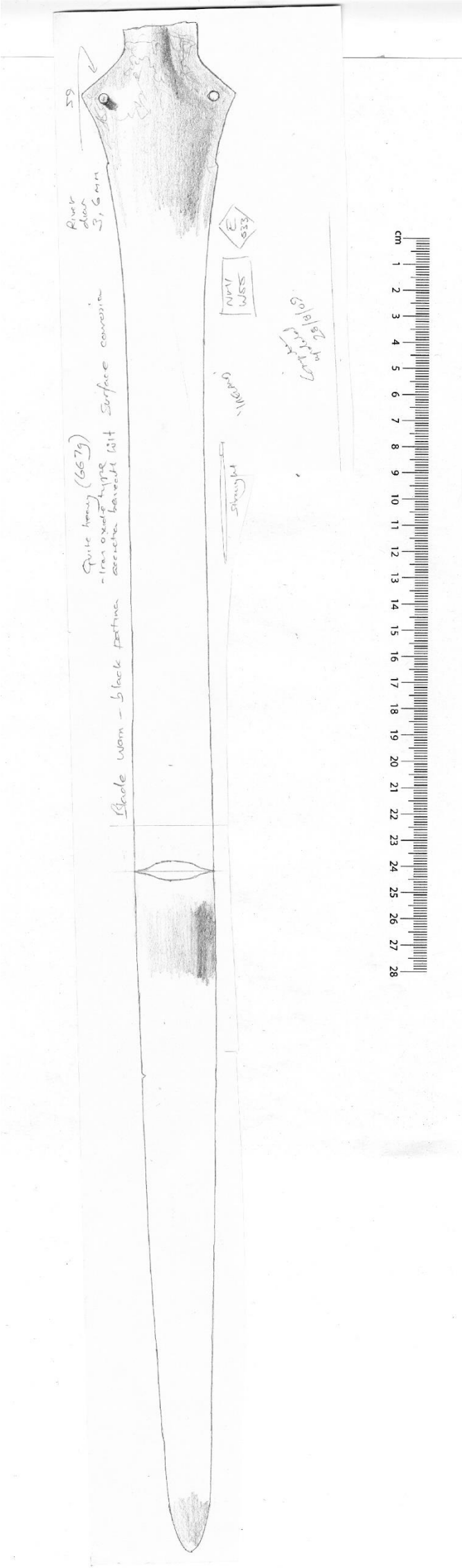


531

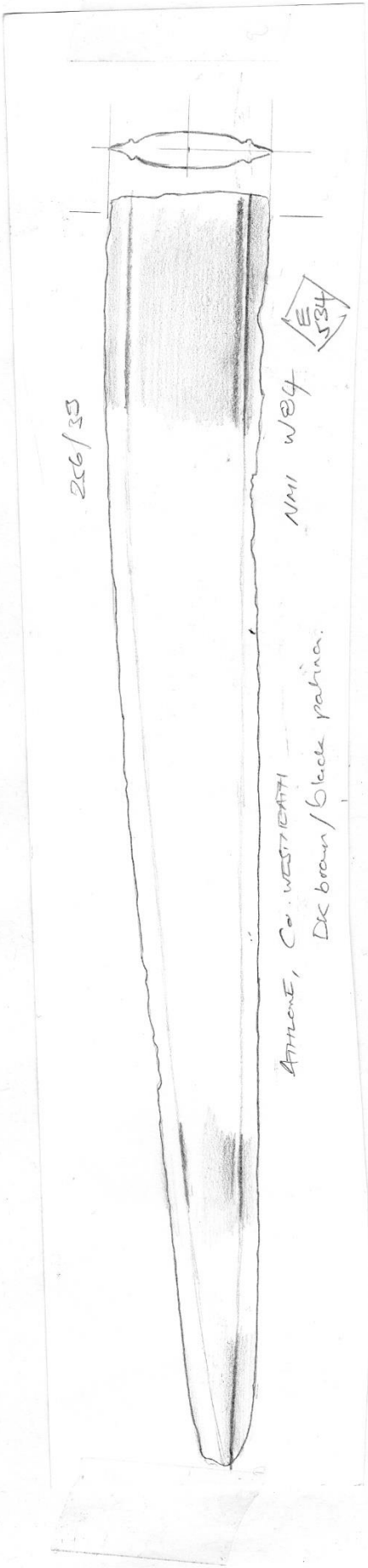




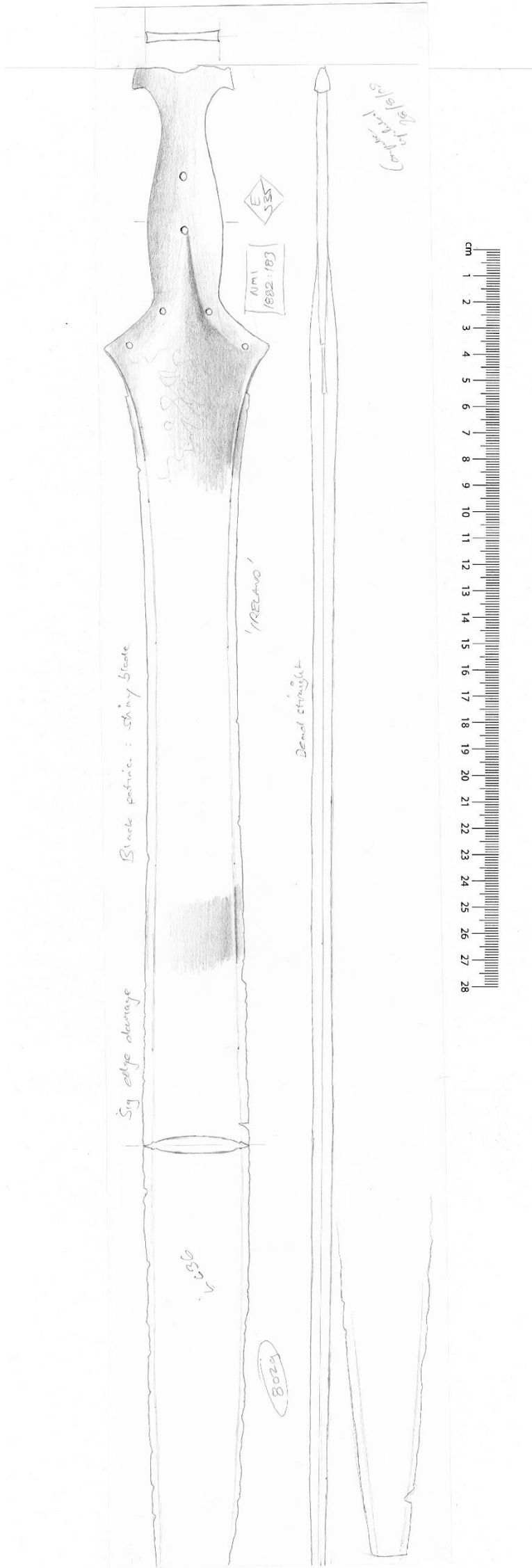
533



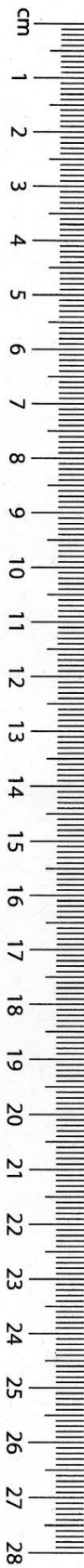
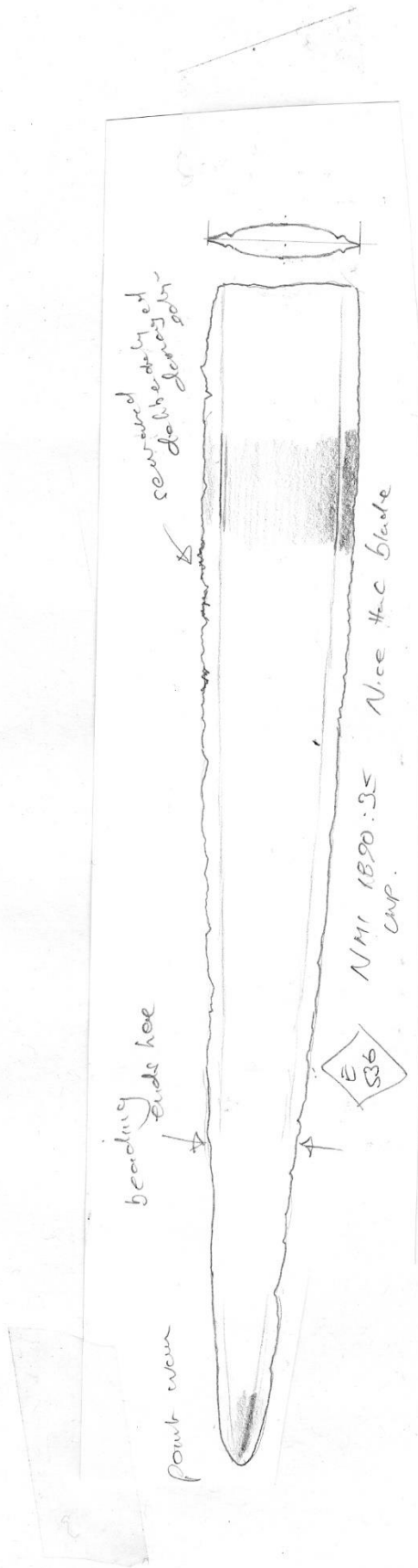
534



535



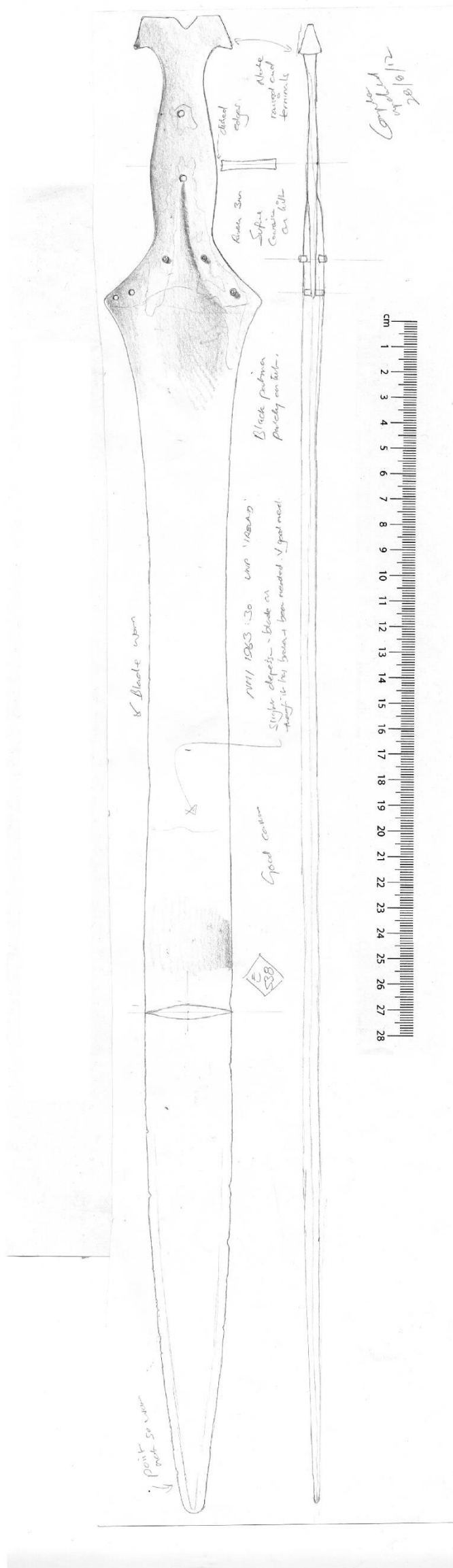
536



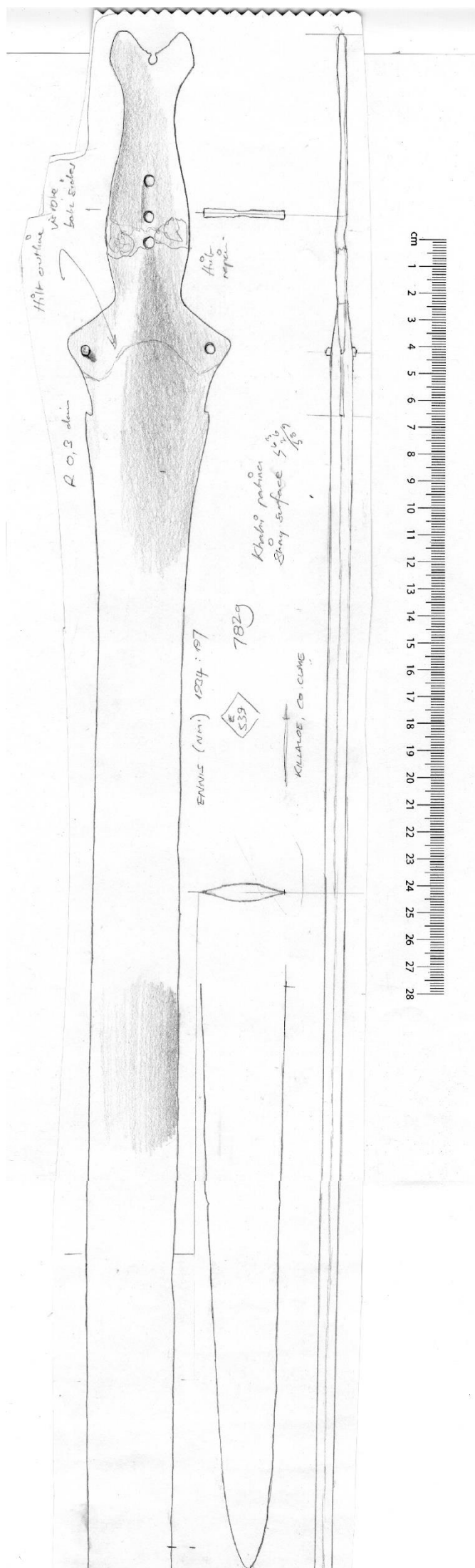
537



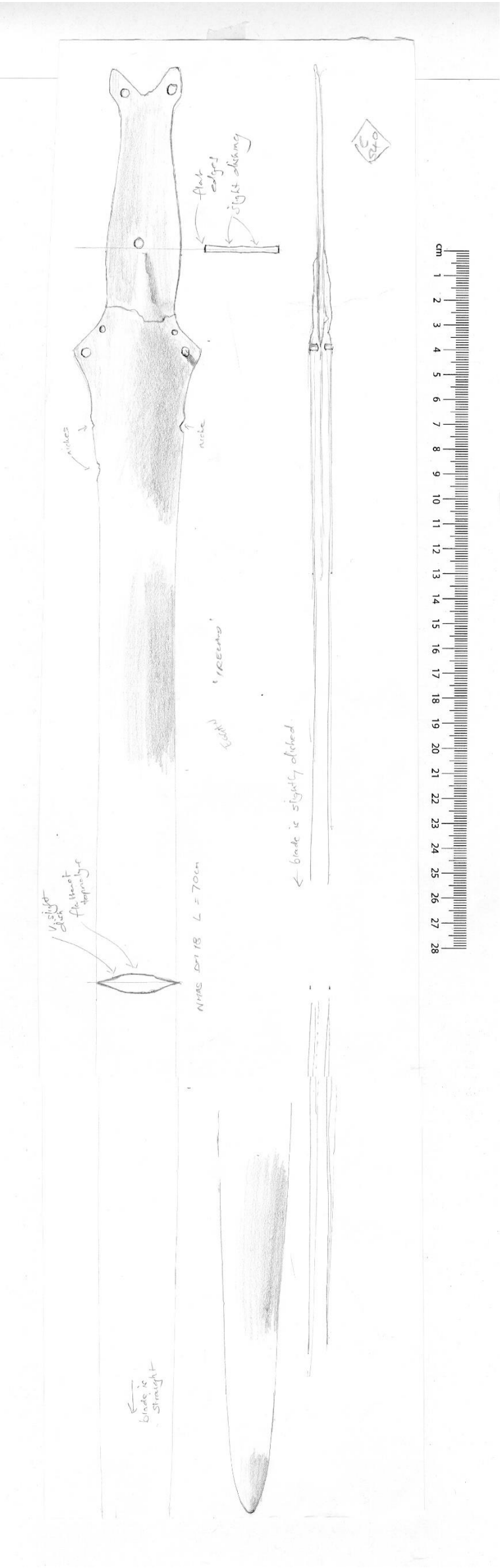
538



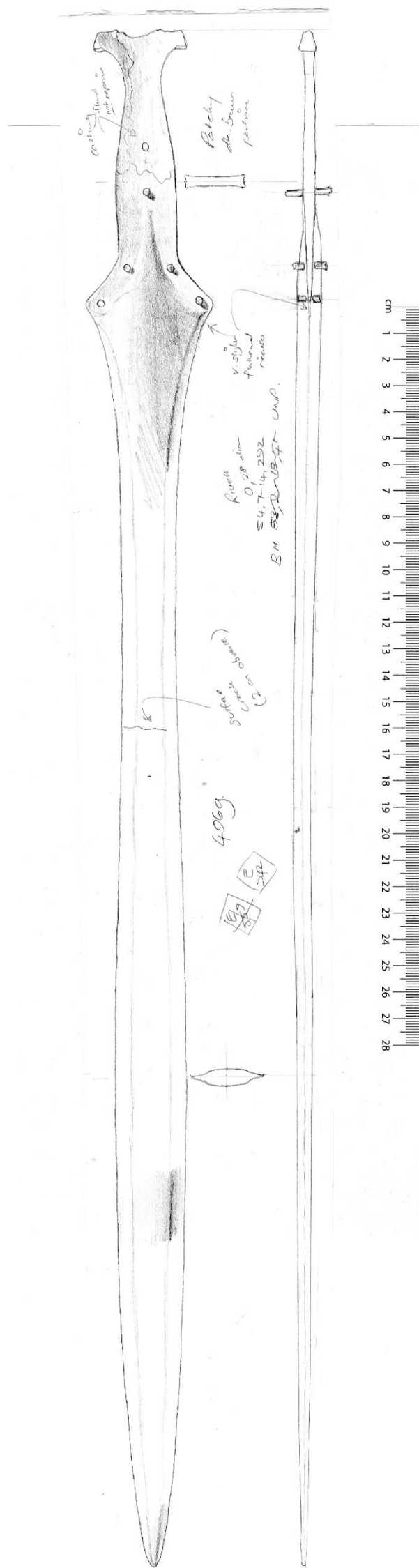
539



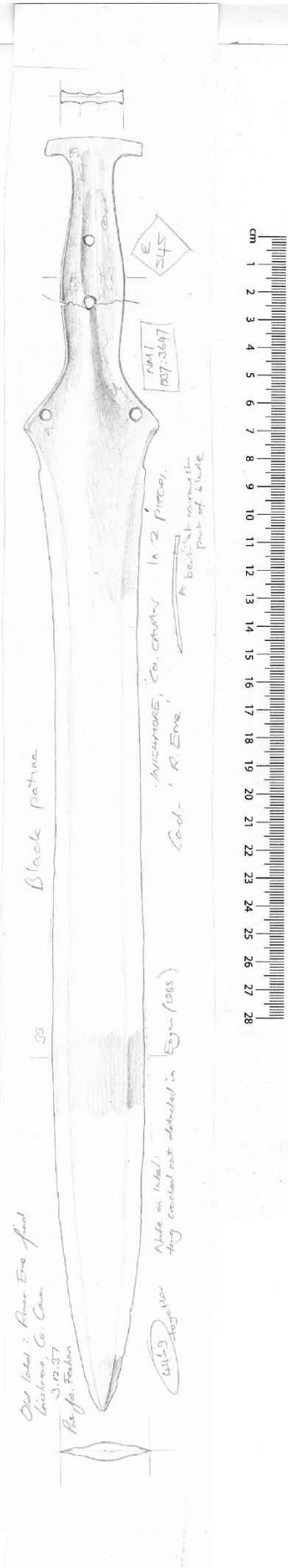
540



542



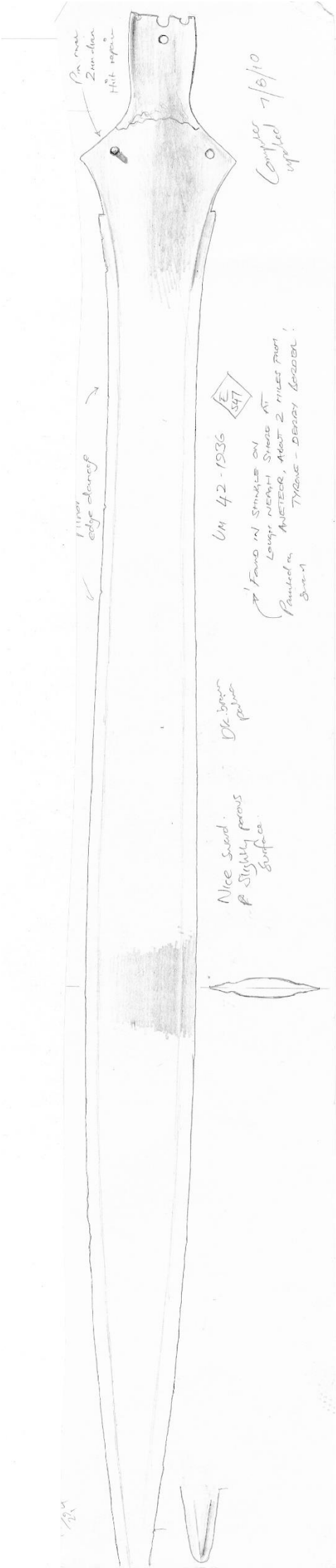
545

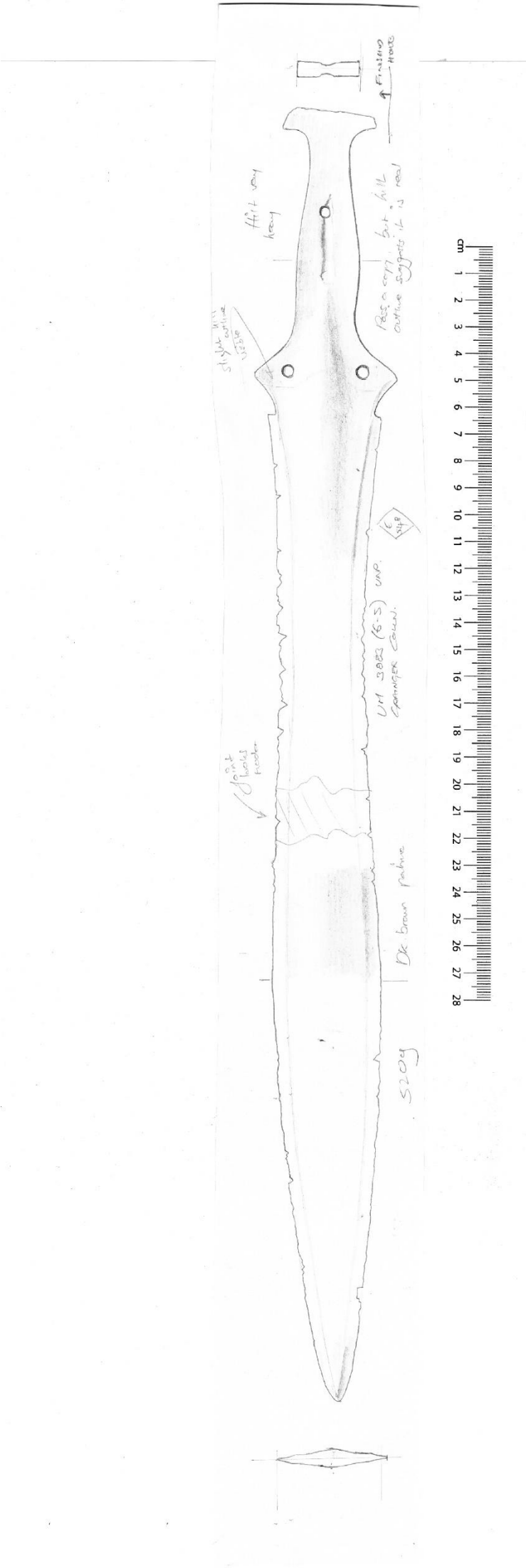


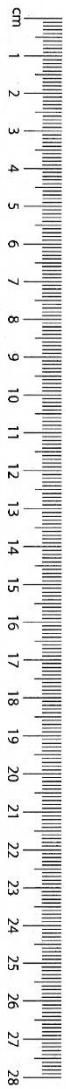
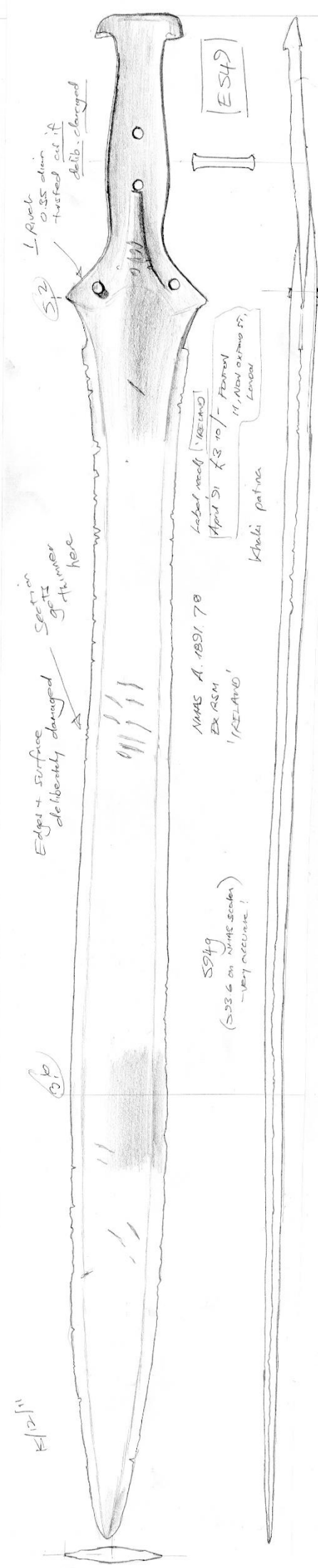
546



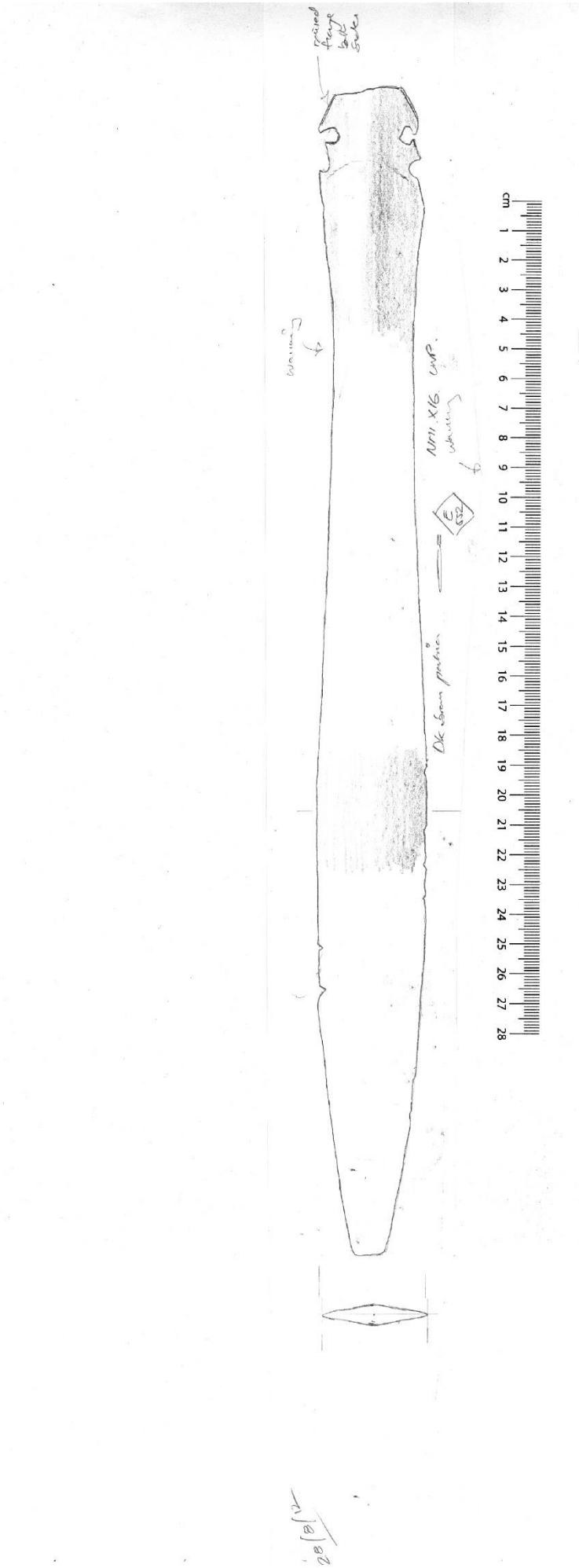
547



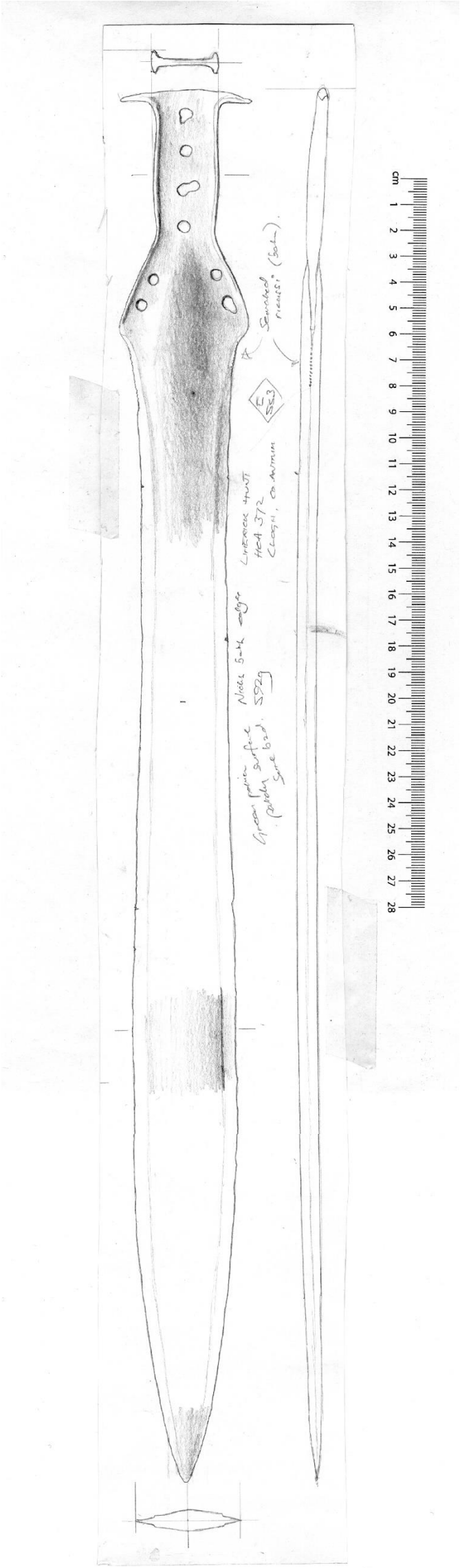




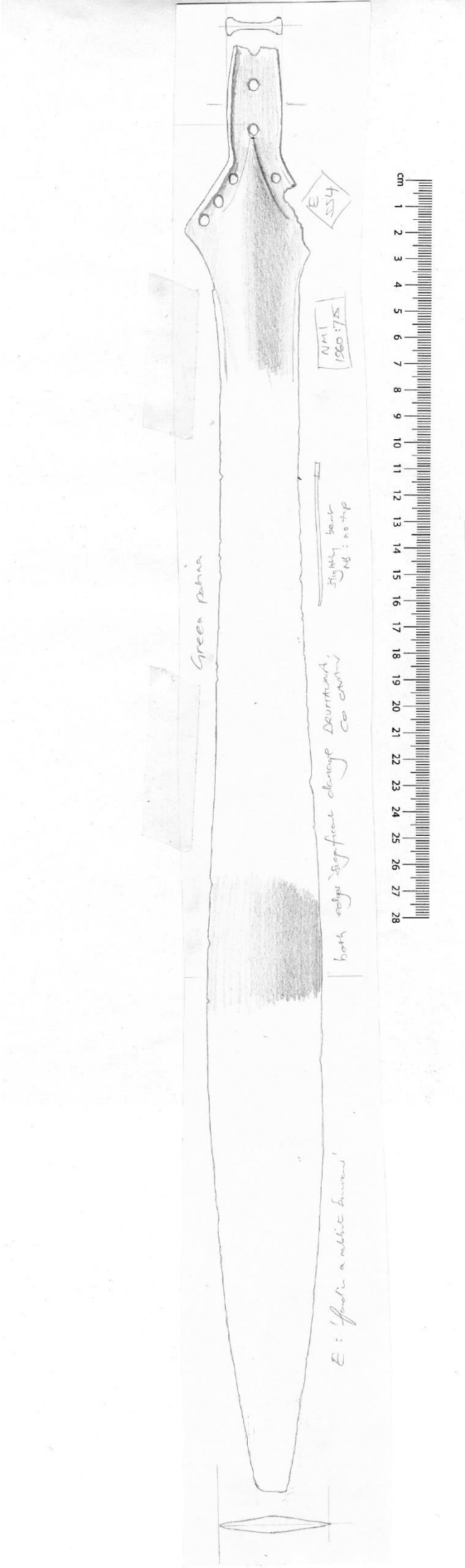
552



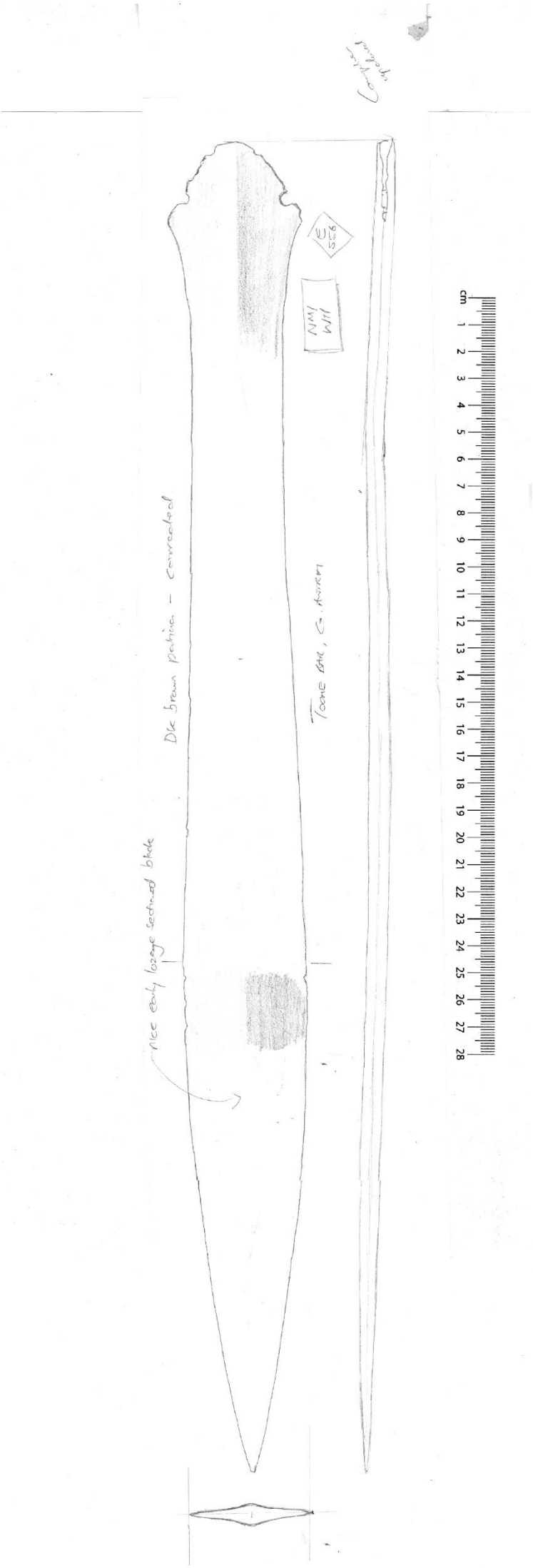
553



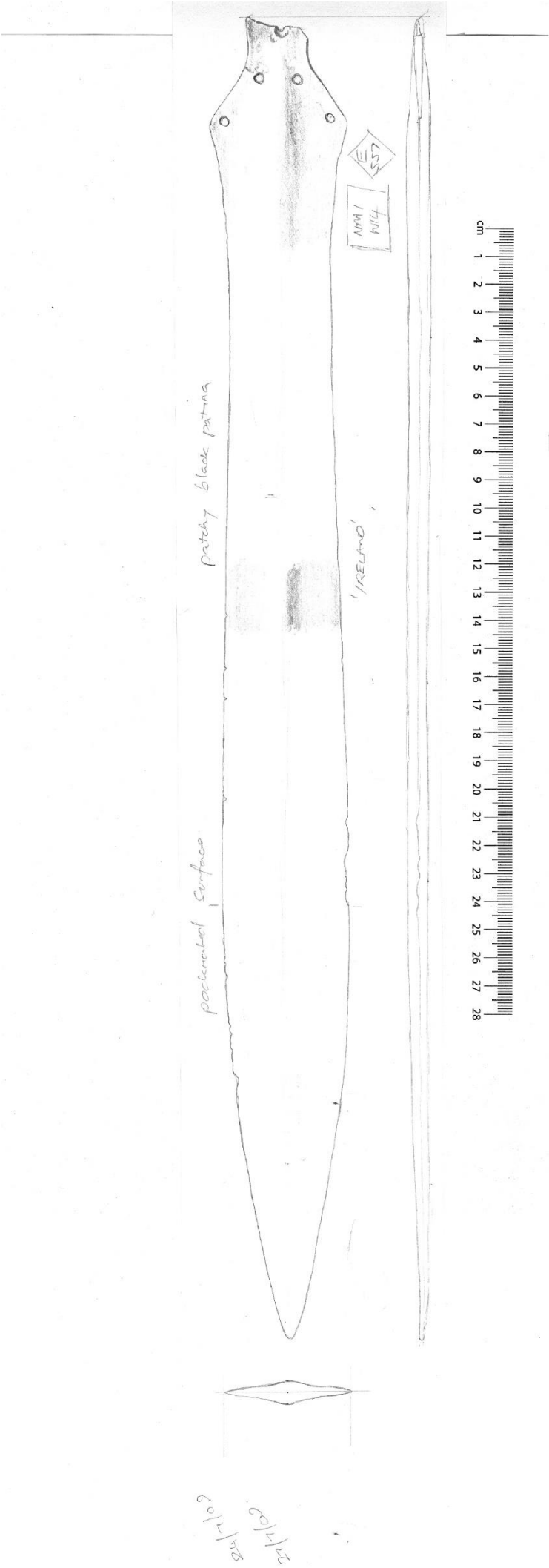
554



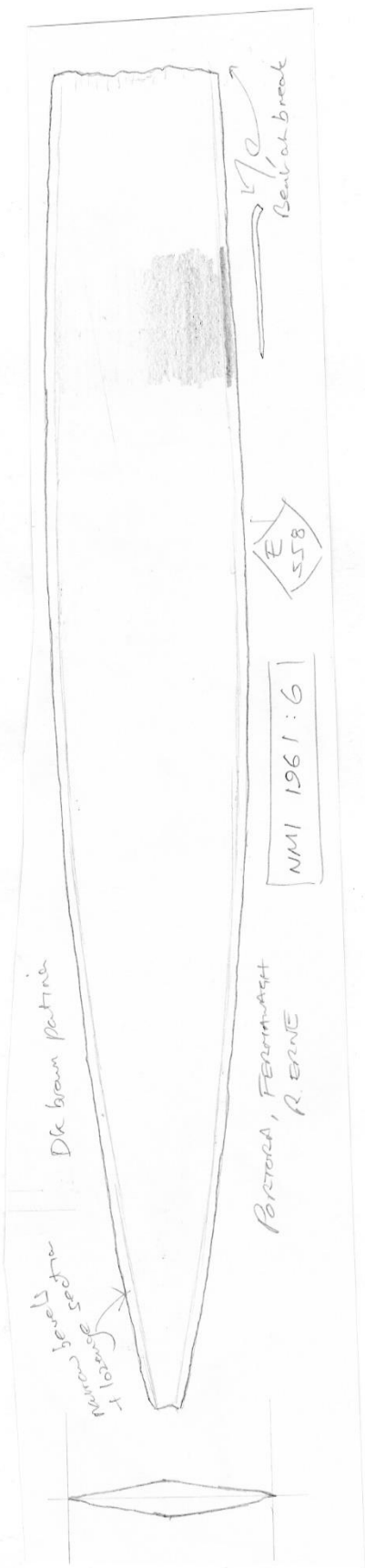
556



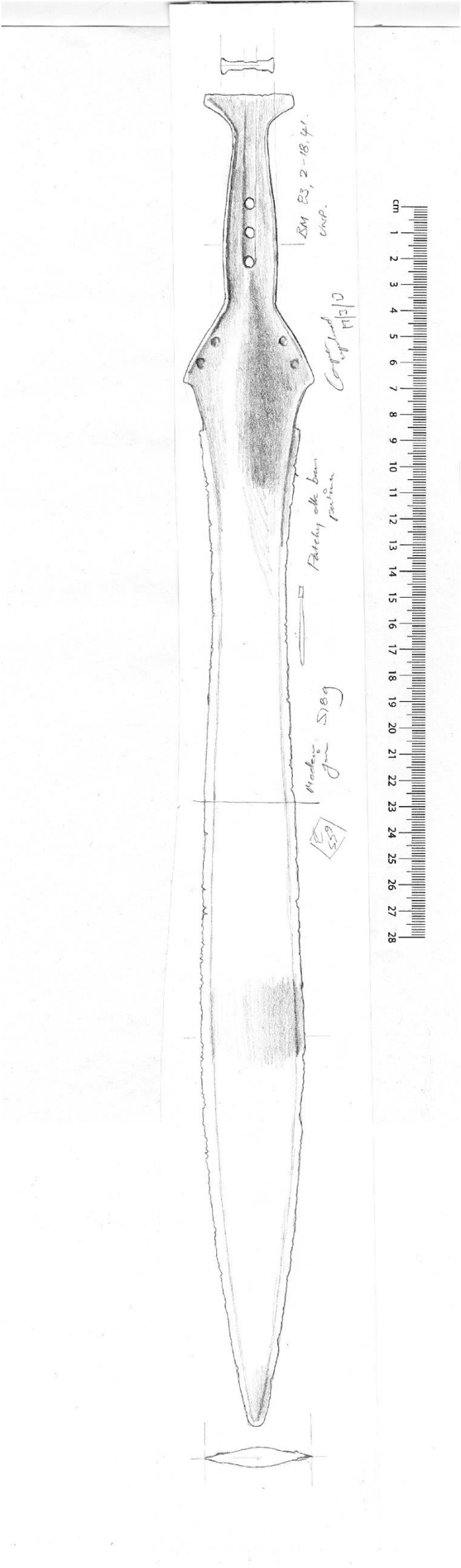
557



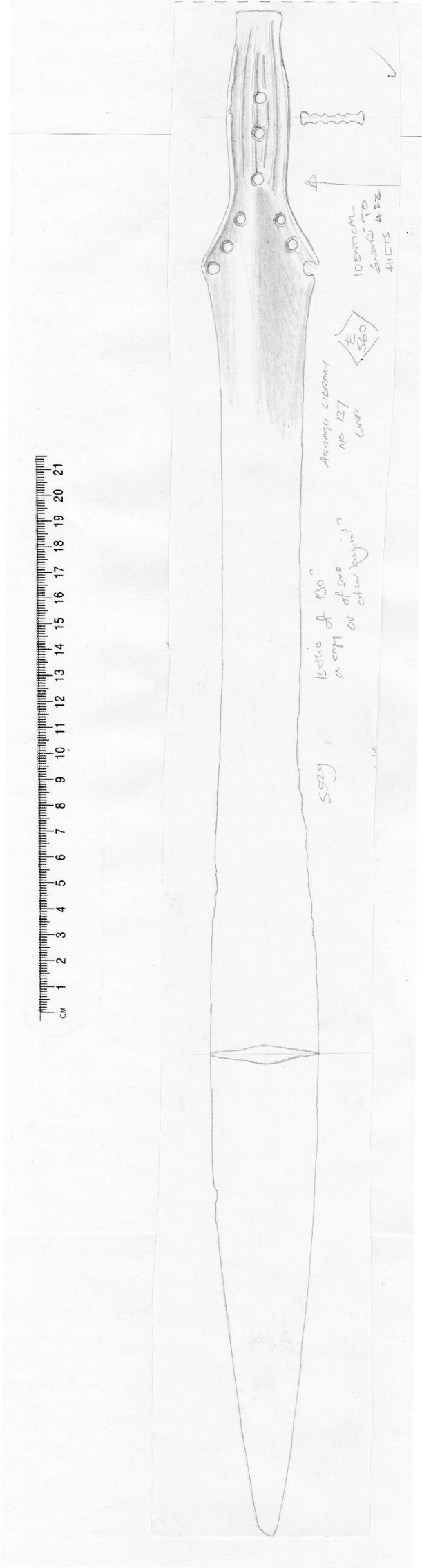
558

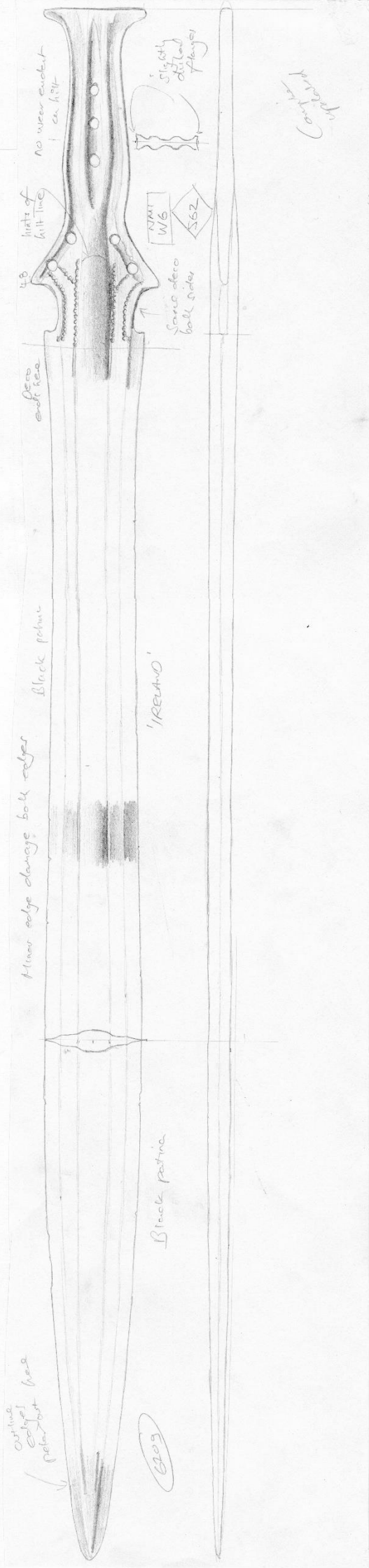


559



560

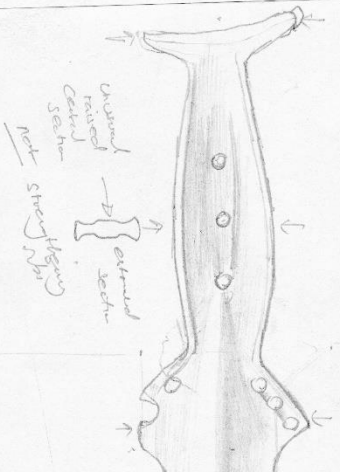




564



✓ = Account E



ALBERTA COUNTY HQ: 1955
 (SKETCH AMOS FROM CHS)
 THIS IS MOIST LINDY
 A FINE, BUT A GOOD ONE
 Co. ALBERTA / Co. MONTANA

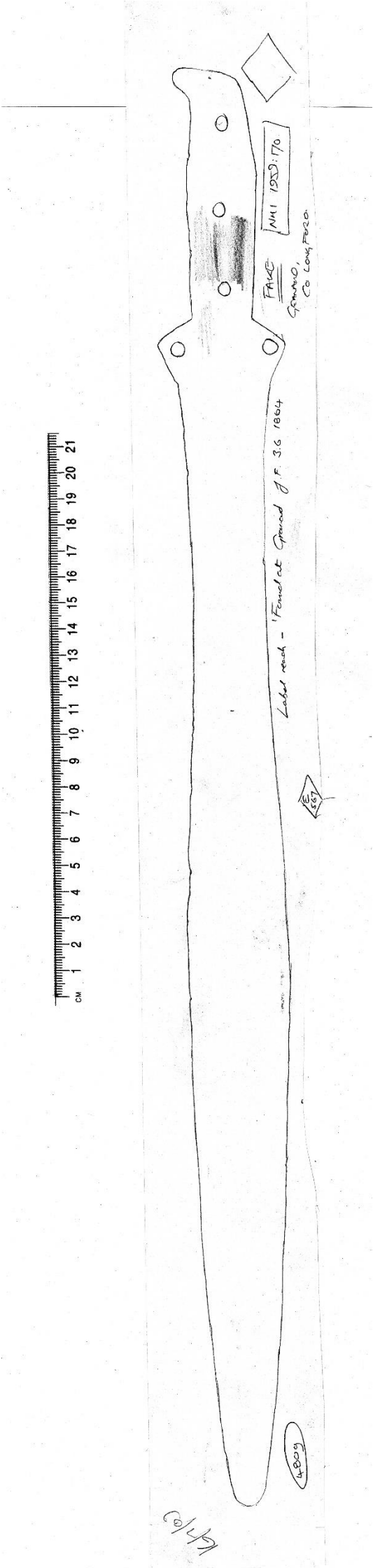
566 E

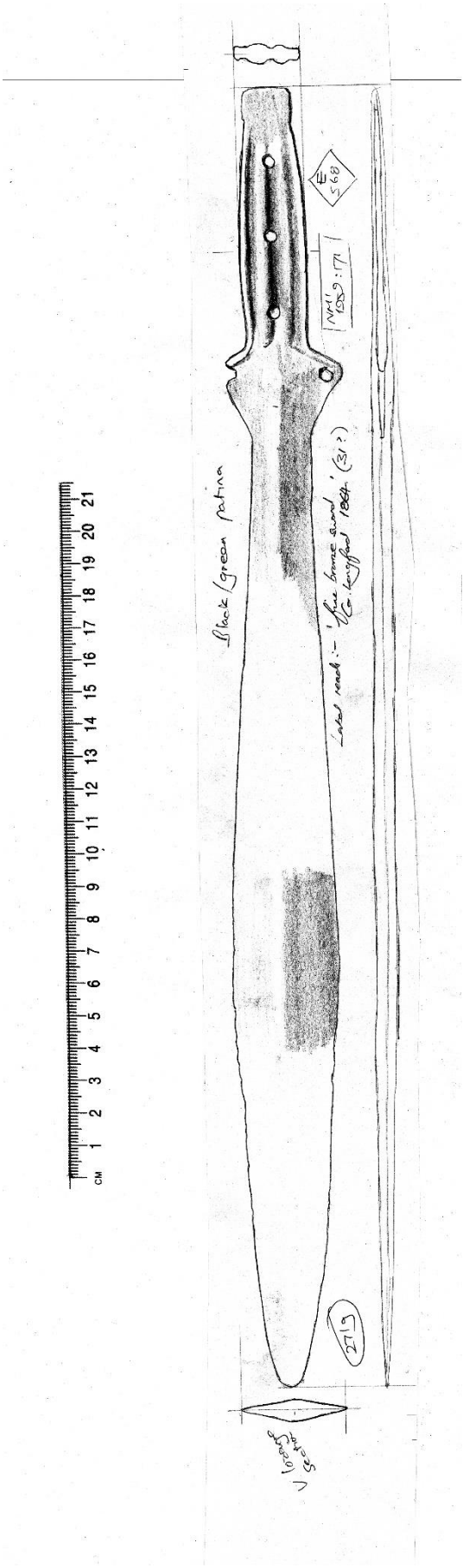
Notes
 111: 1935 = Dog fight. Dusted hole.
 * 6: 1935 = Very thick + heavy rut.
 * 5: 1935 = 8x holes - very fine.

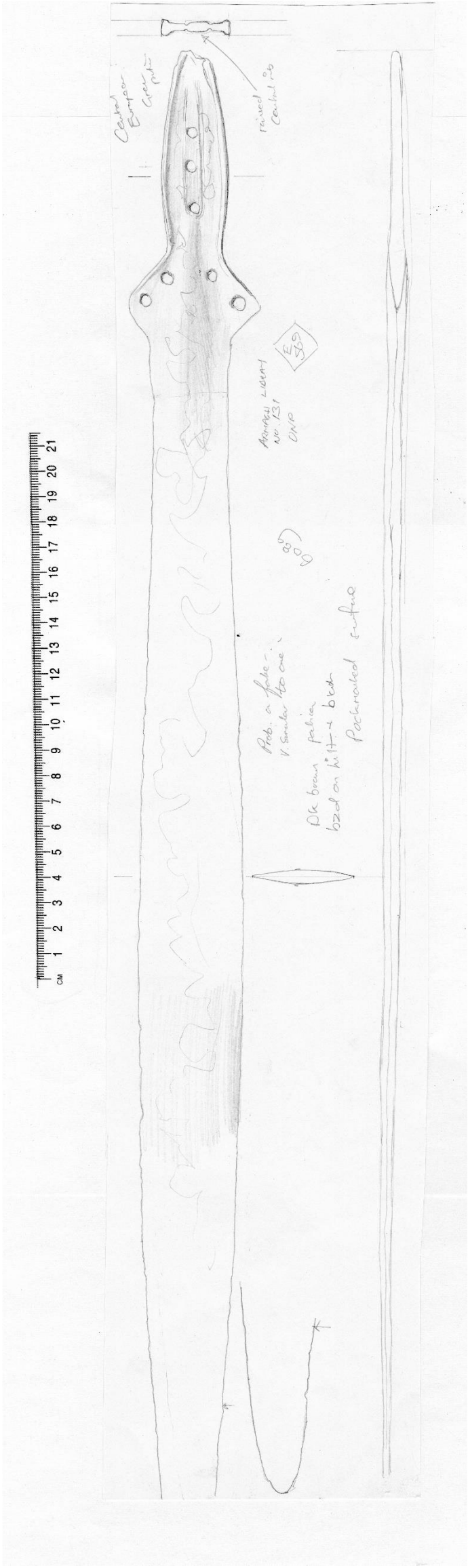
* FROM ANGELO BOGOSI,
PARKMAN, (LINDS COTTAGE)
CO. TYRONE.

111 = Armenian / monastic dossier
'Zenicon' code.

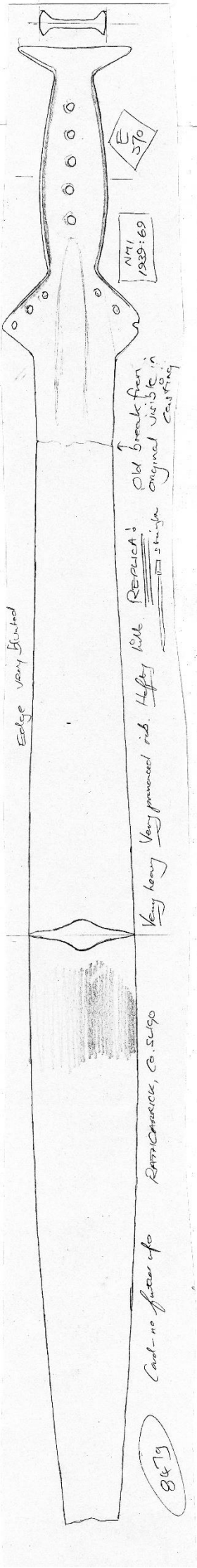




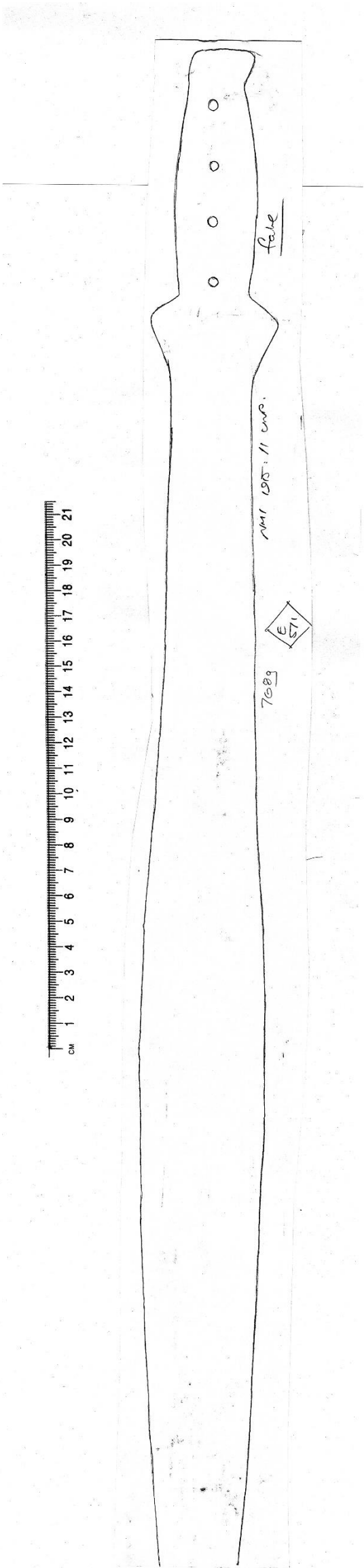




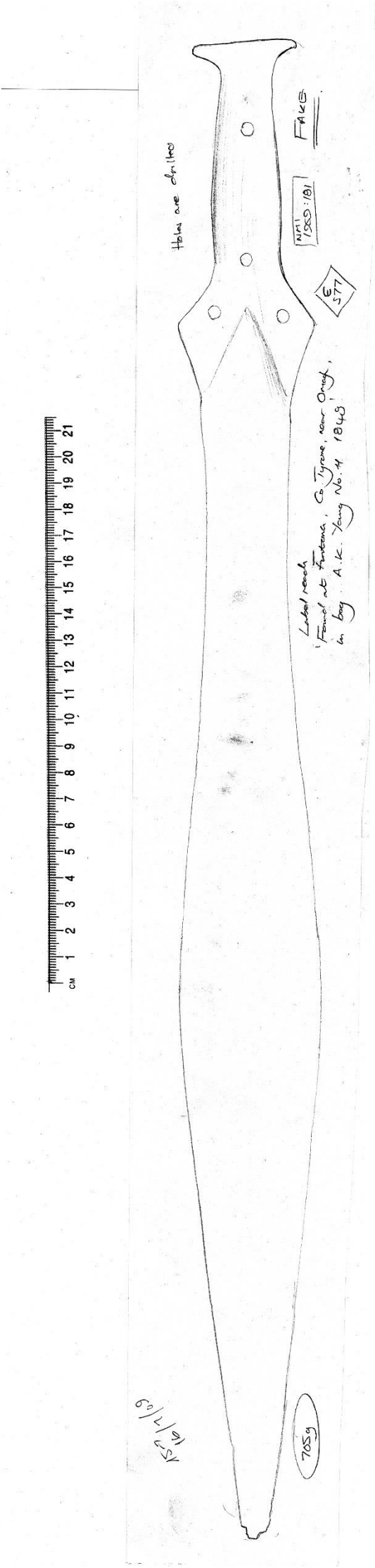
570



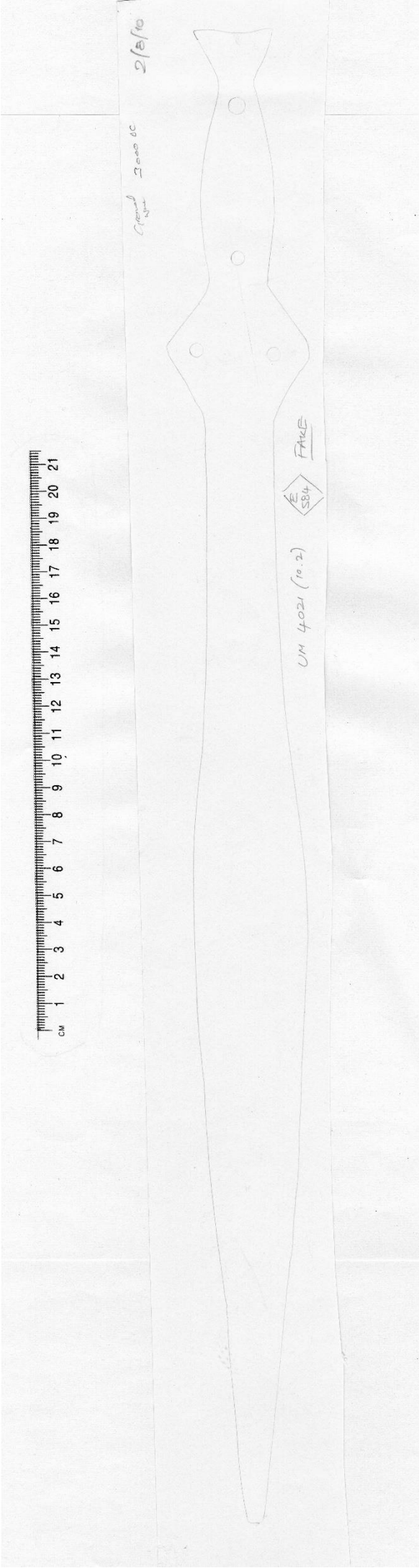
571

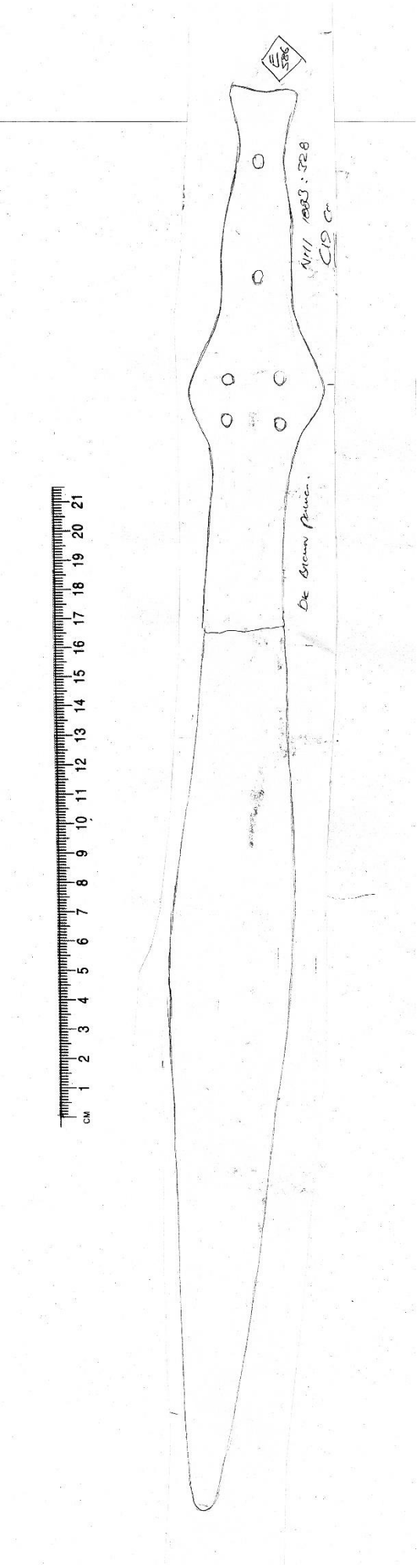


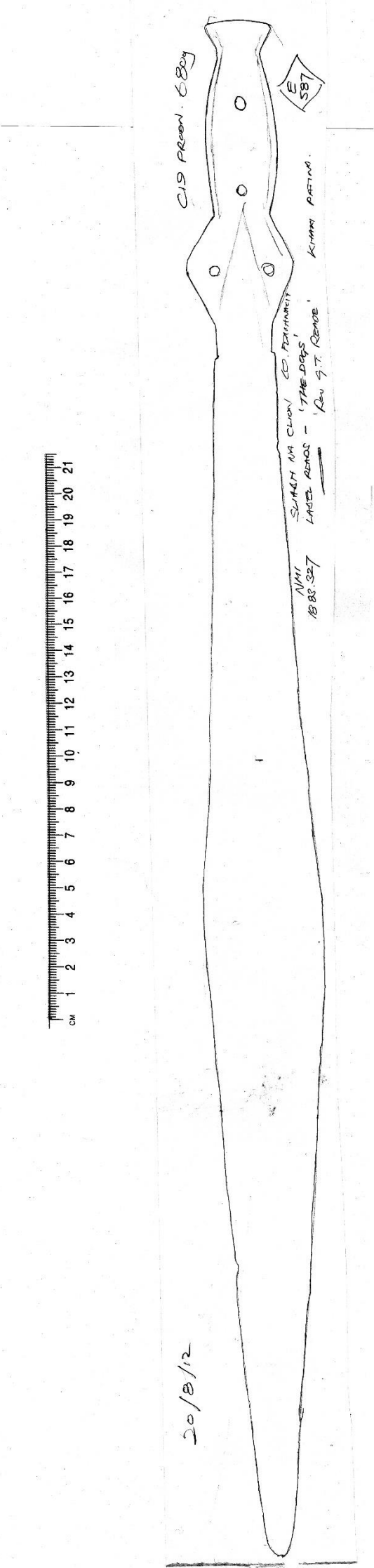
577



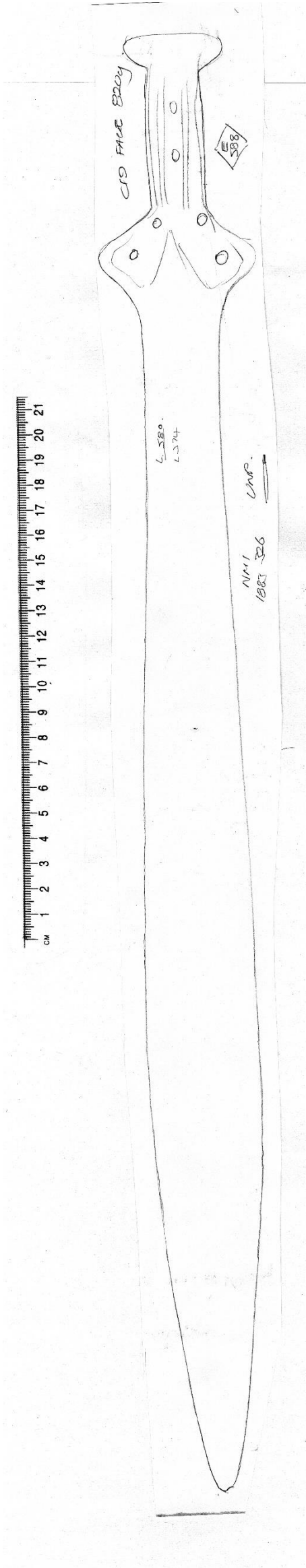
584

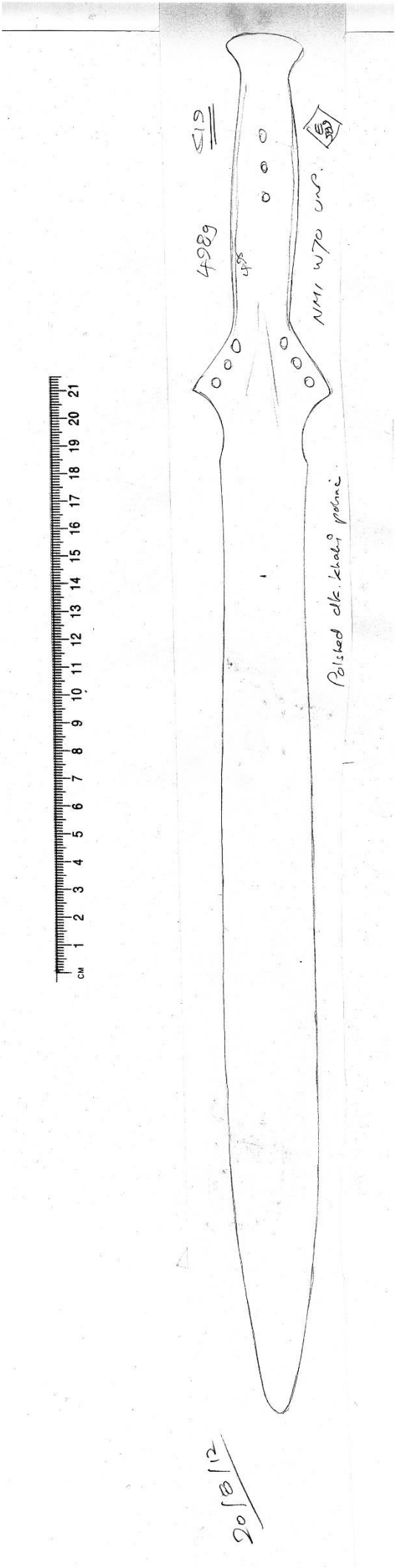


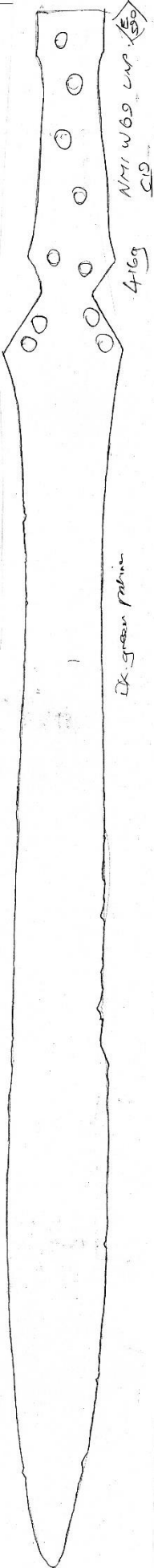




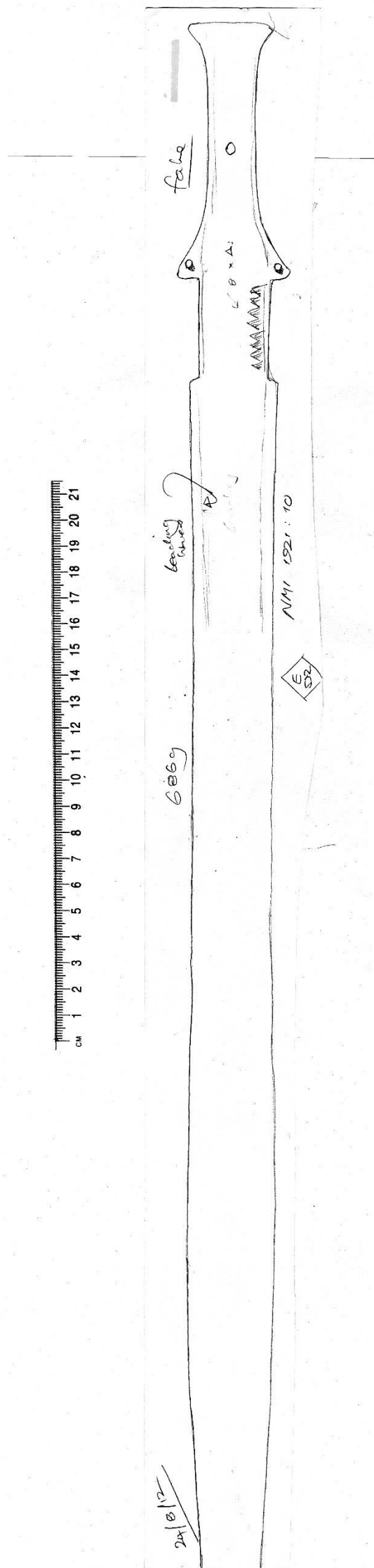
588

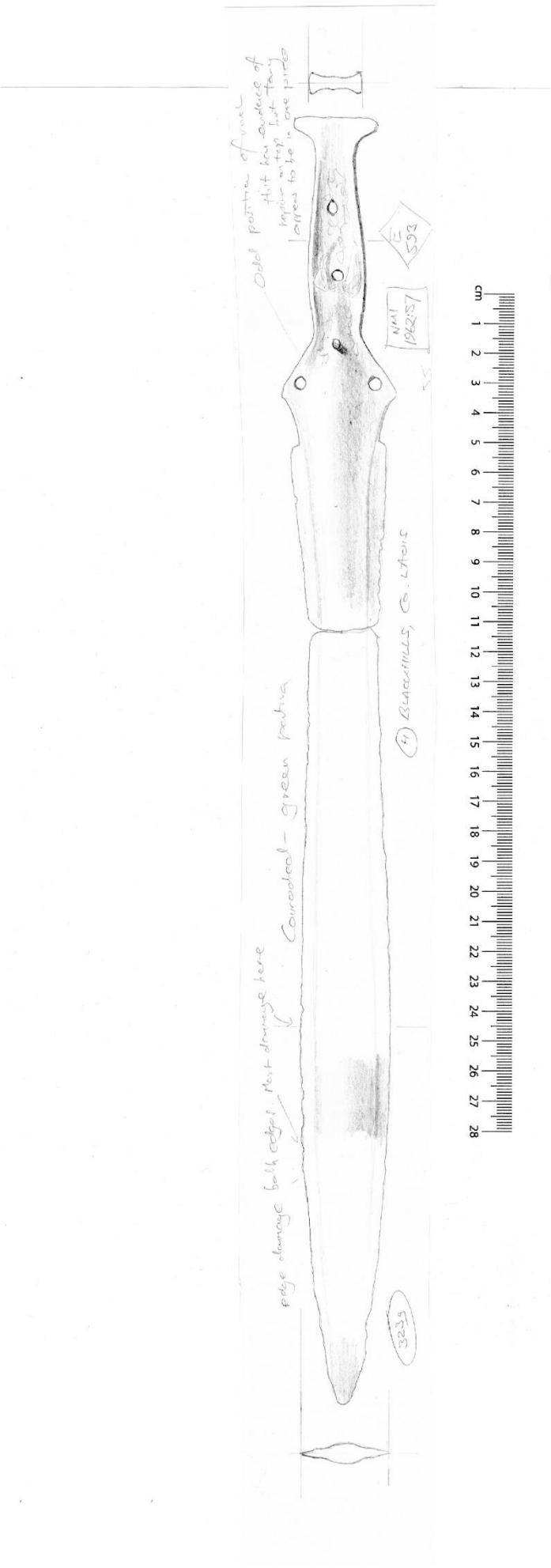


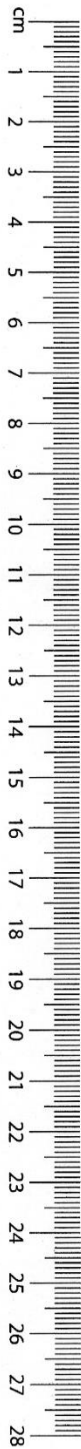




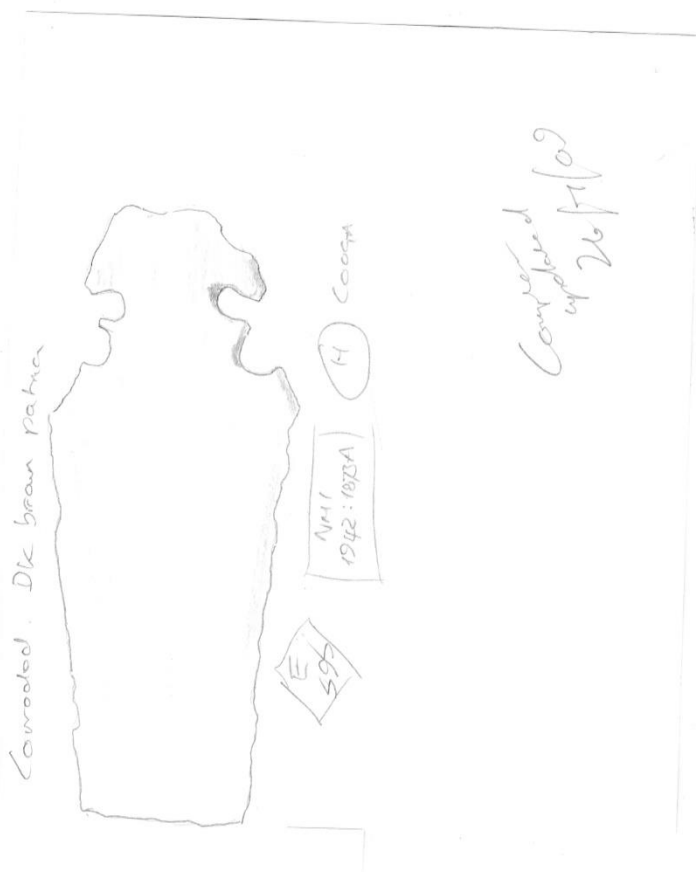
592







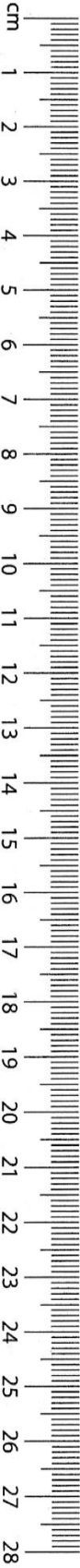
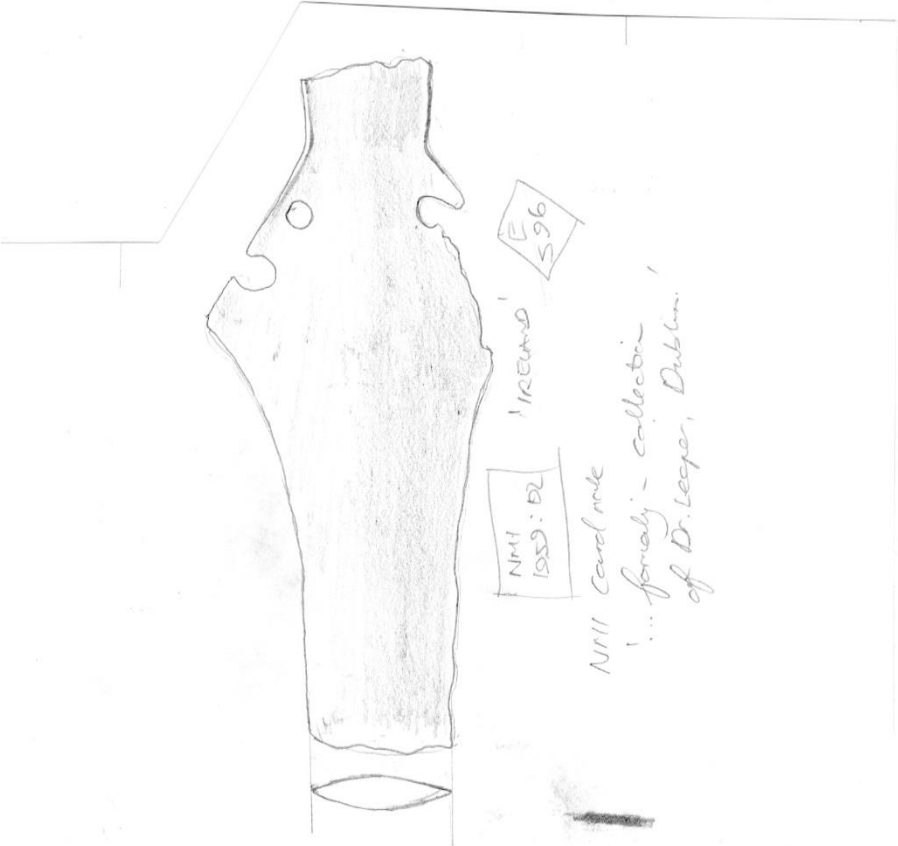
595



Completed
26/1/09

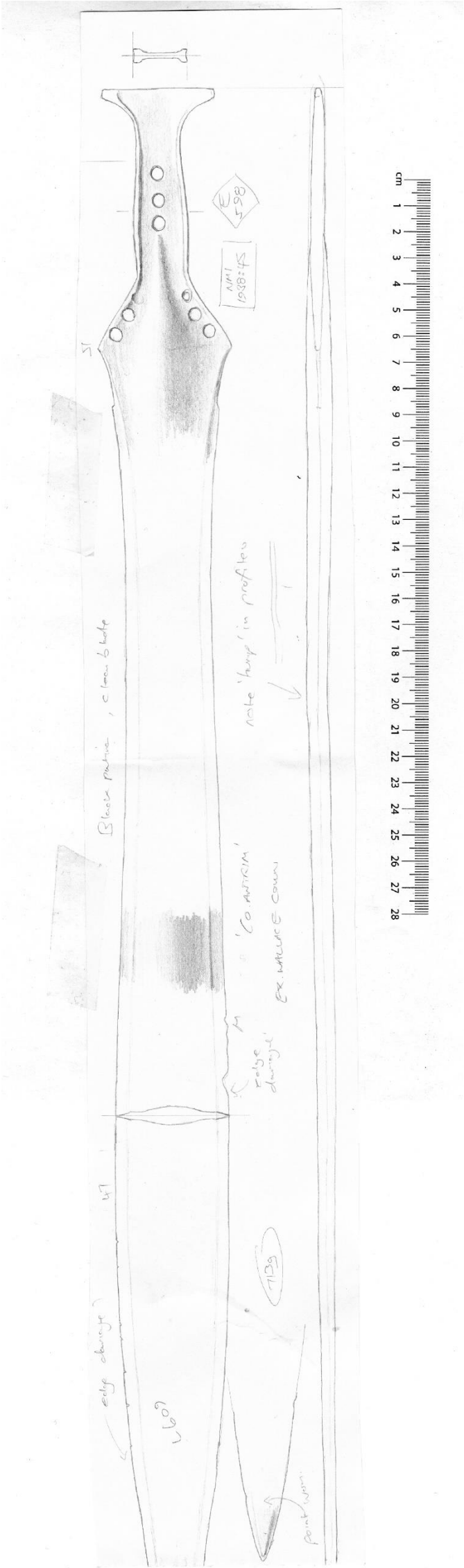
cm 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

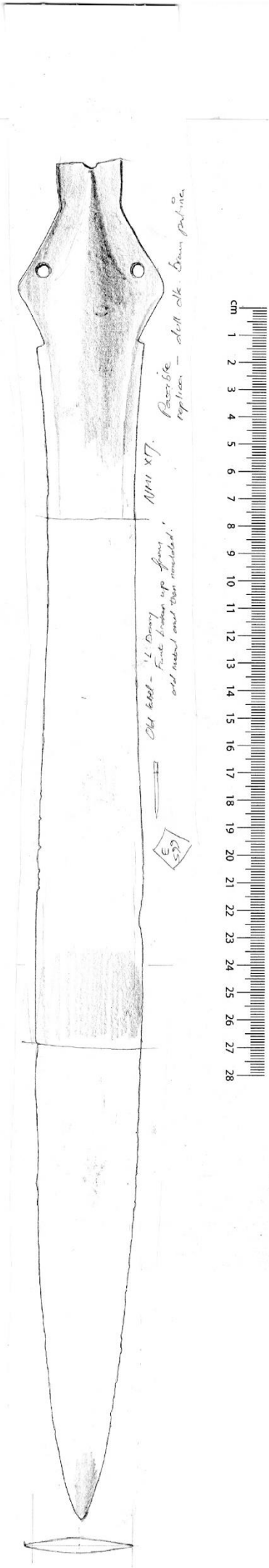
596





598





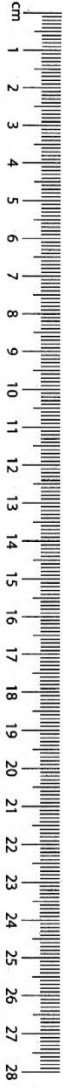
600

21/0/12

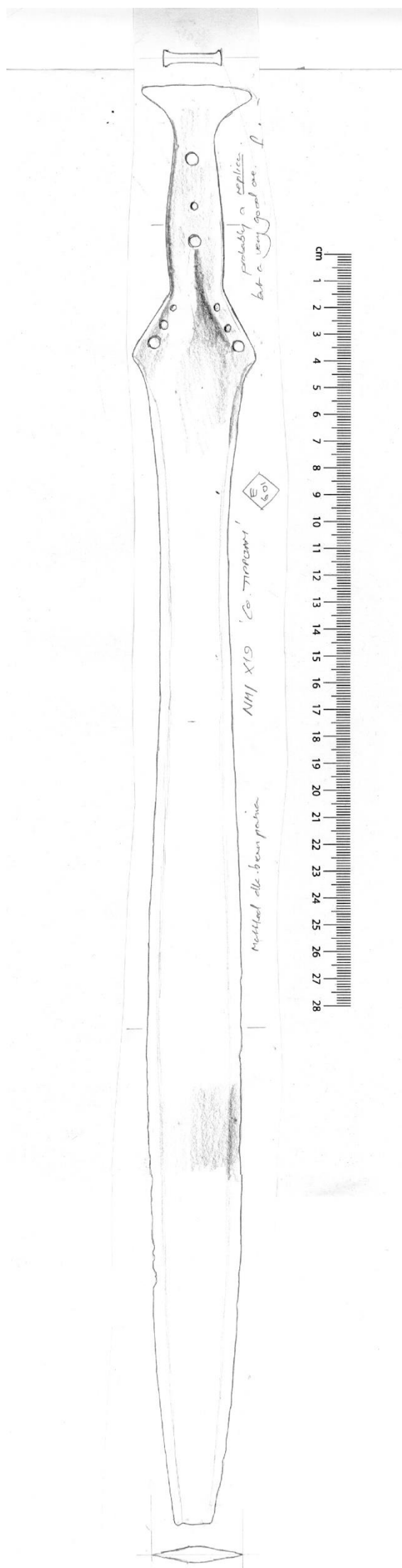
←
main

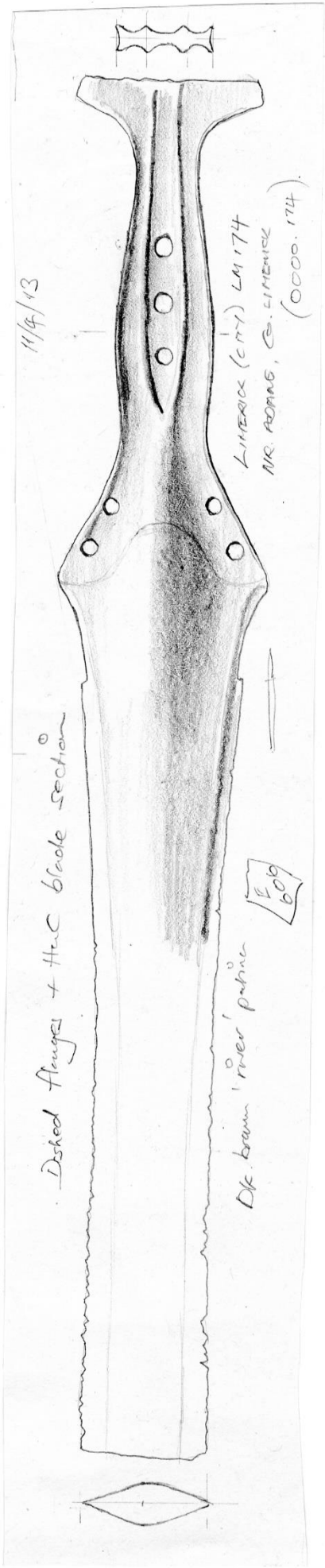


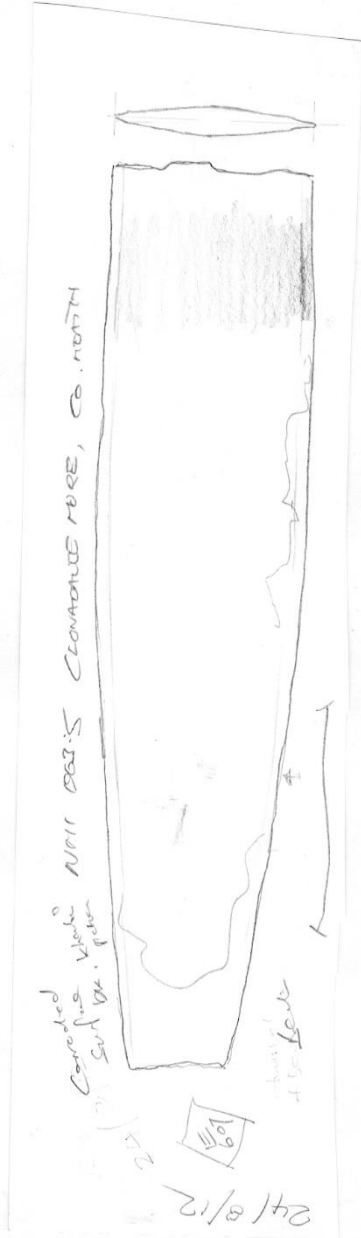
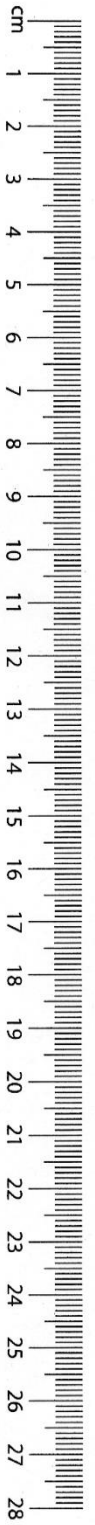
18 X 11 mm
KRENO
Bam palm, rough surface
possibly a copy.

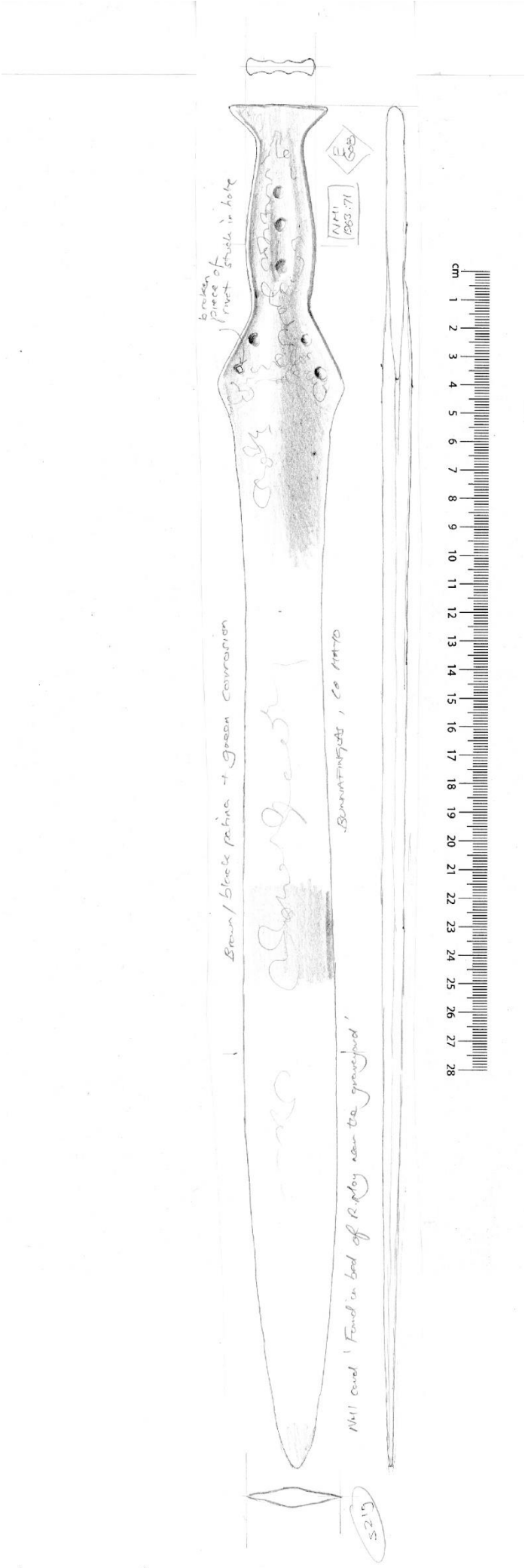


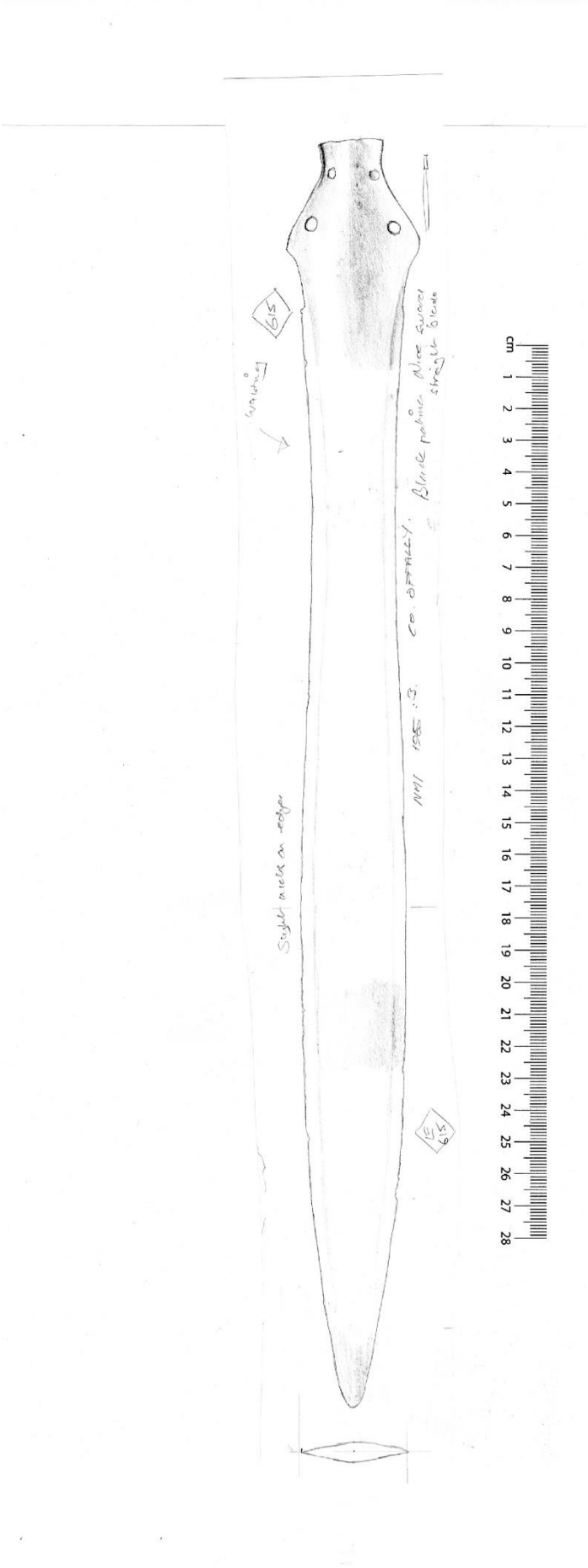
601



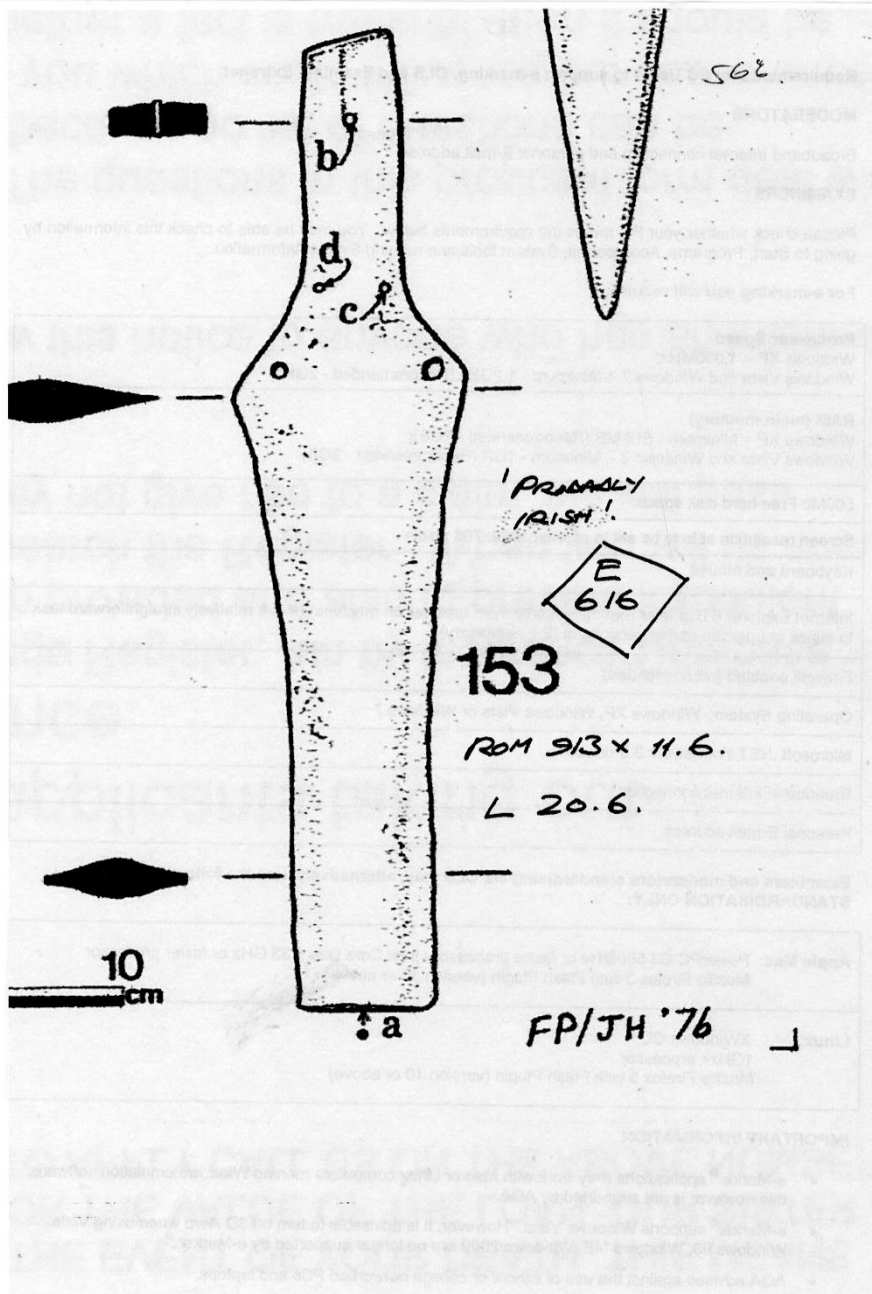




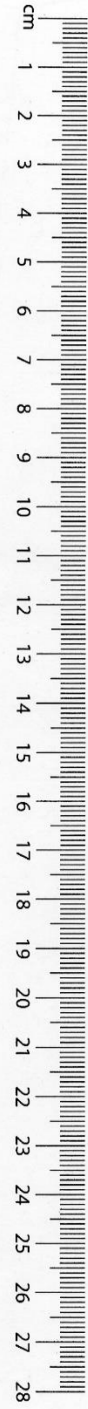
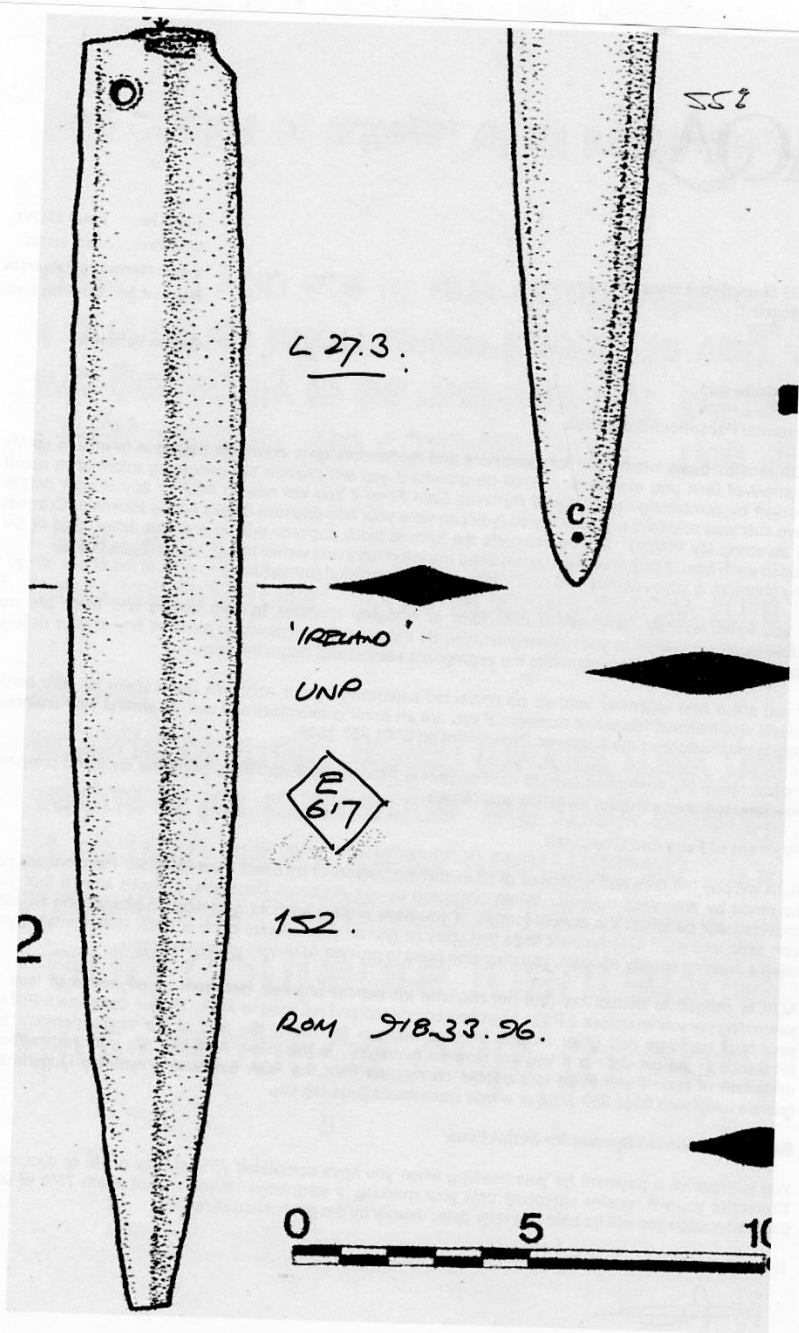




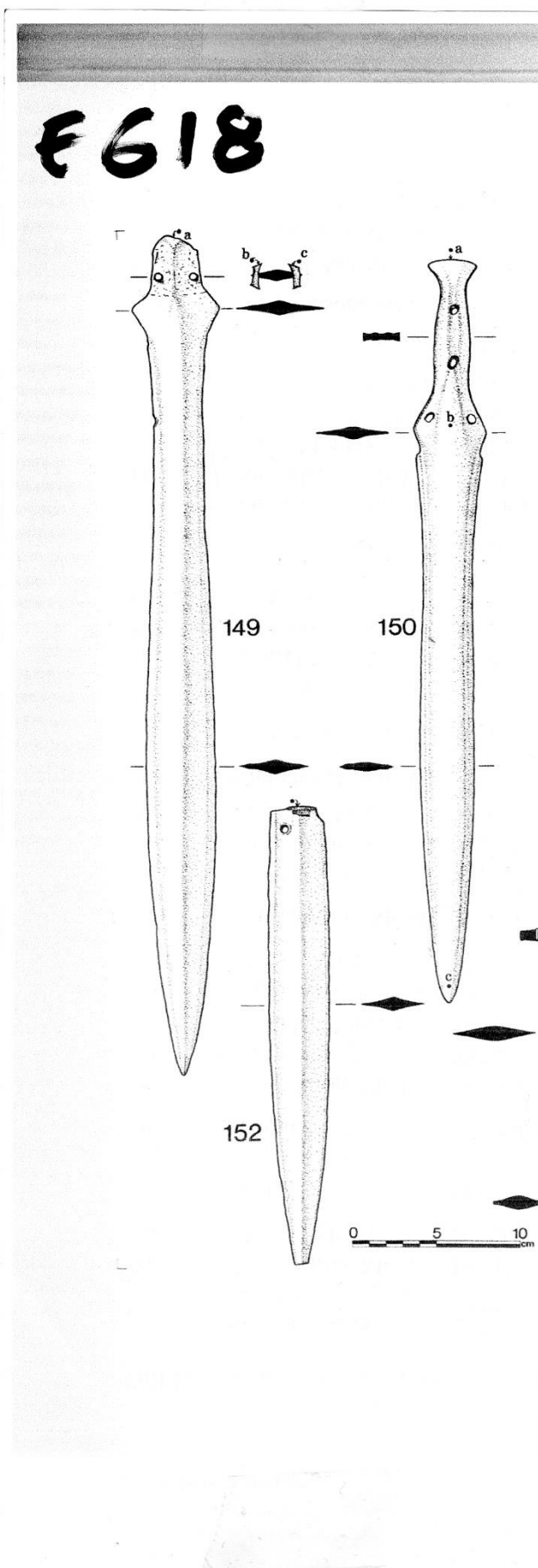
616

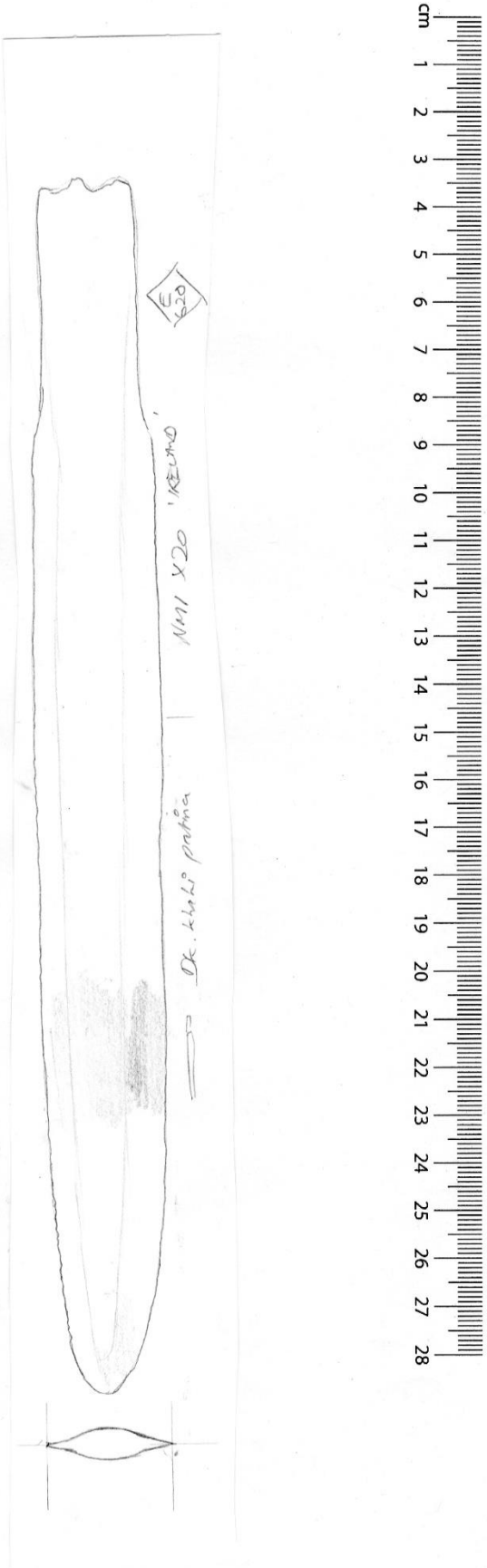


617

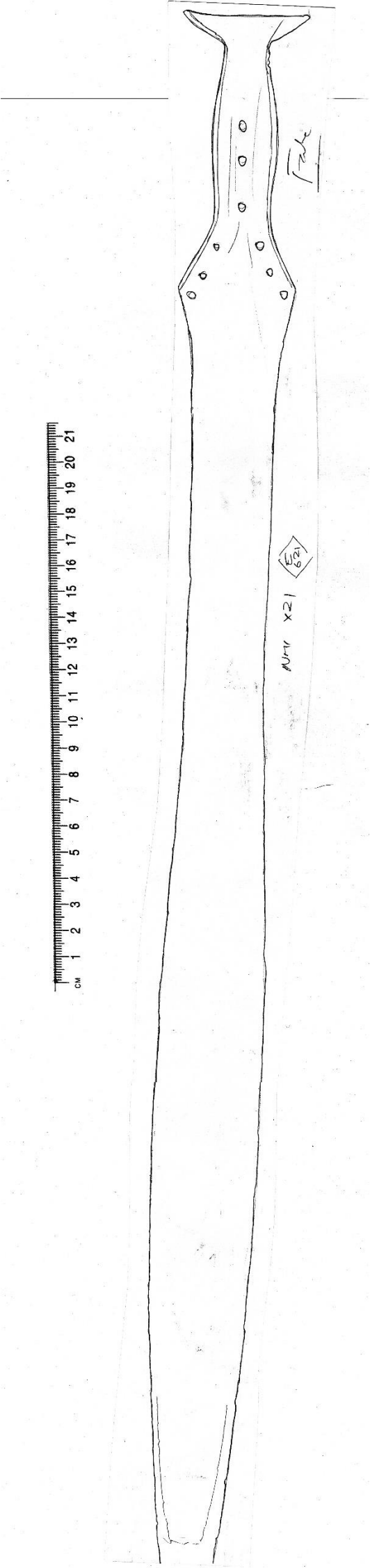


618

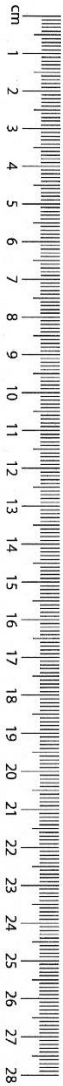
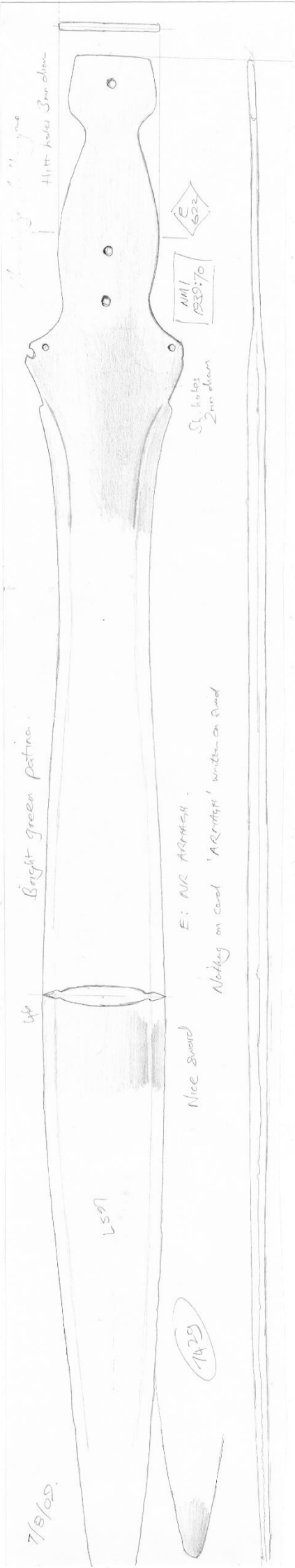




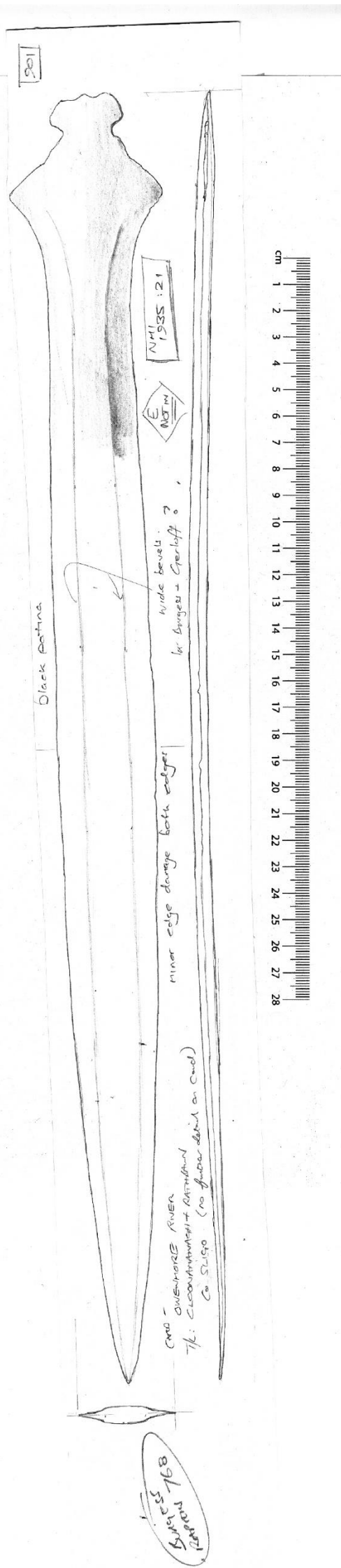
621



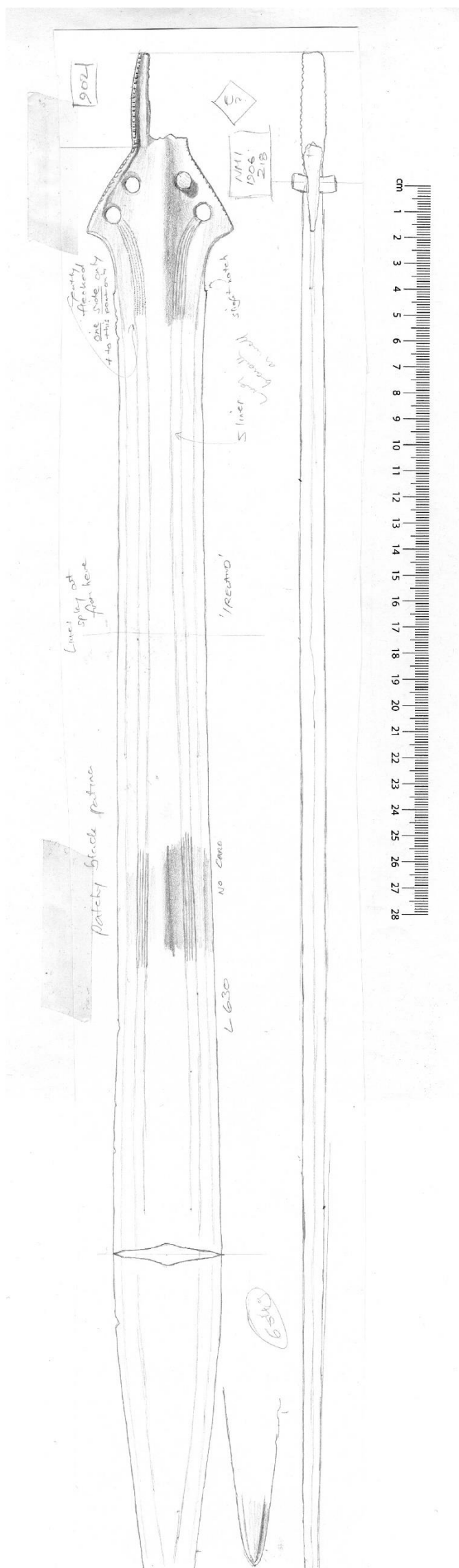
622

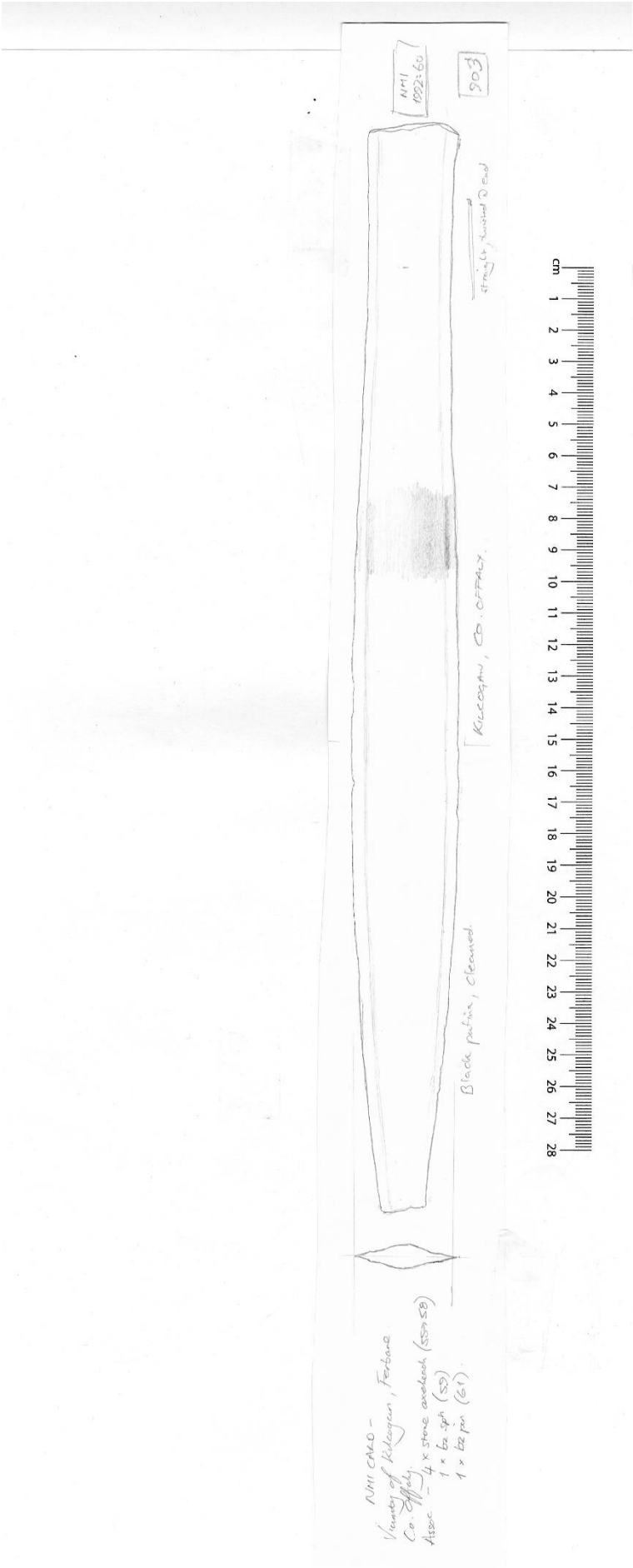


901

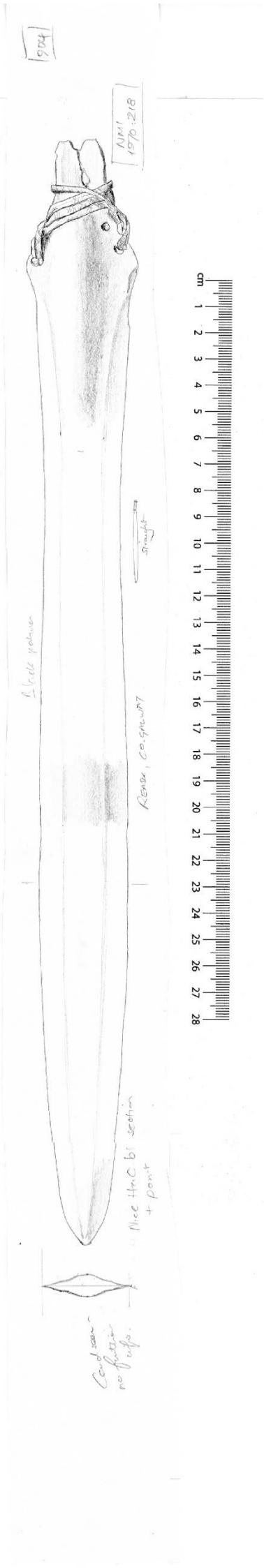


902

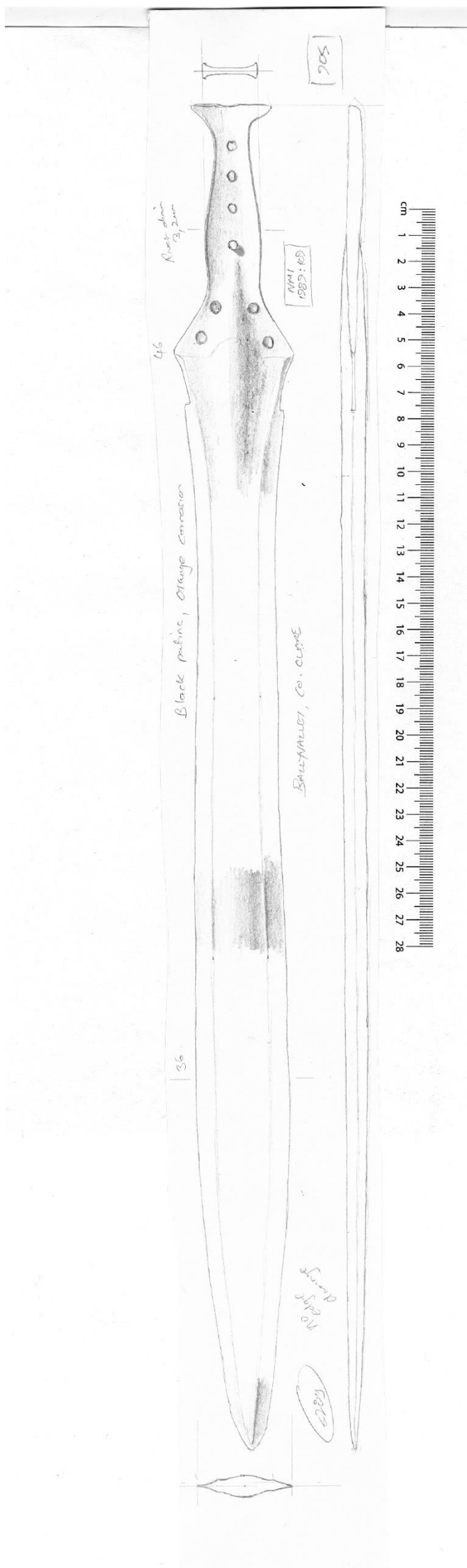




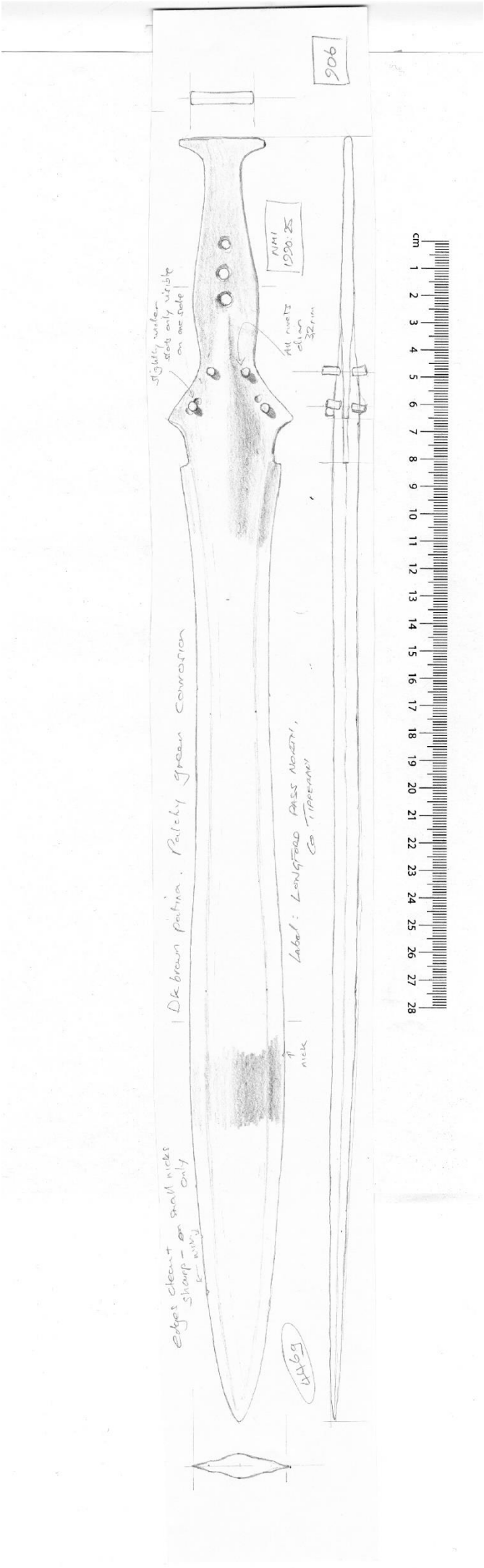
904



905



906



907

Khaki green patina

Significant edge damage

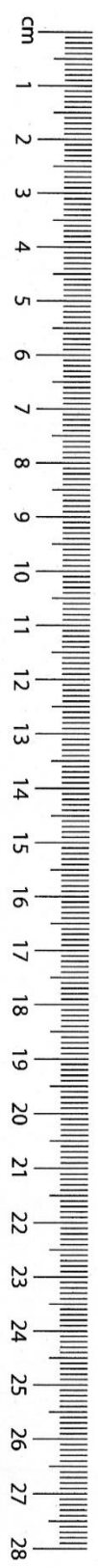
907

855661
11/11/14

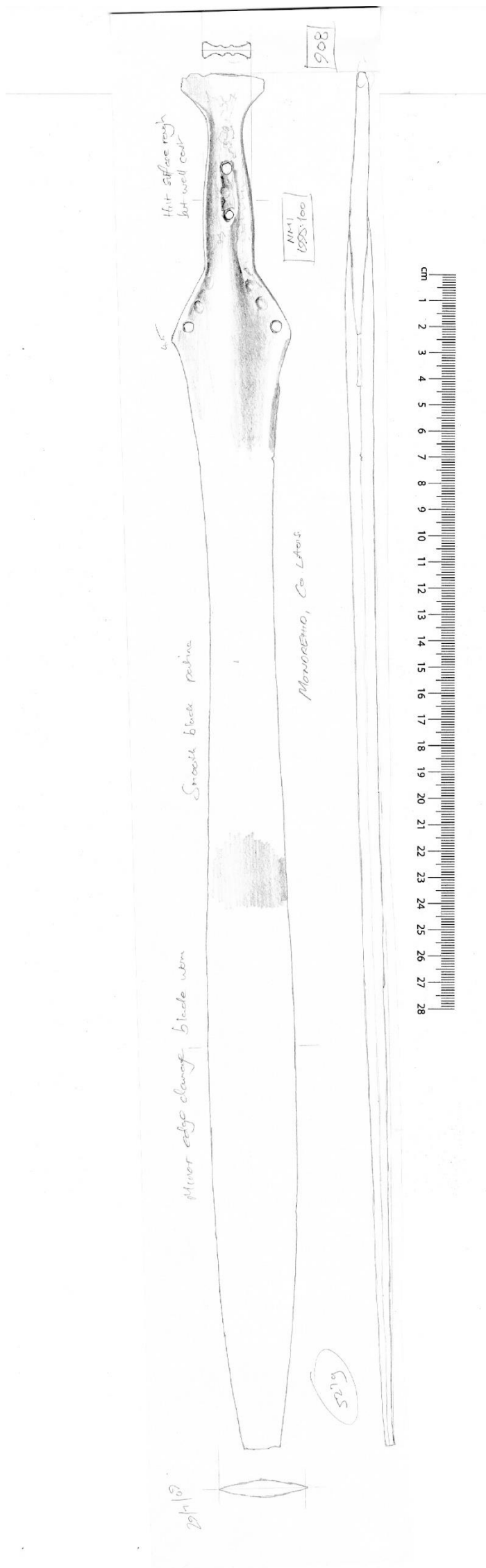
Completed
29/1/16

5 Fragments

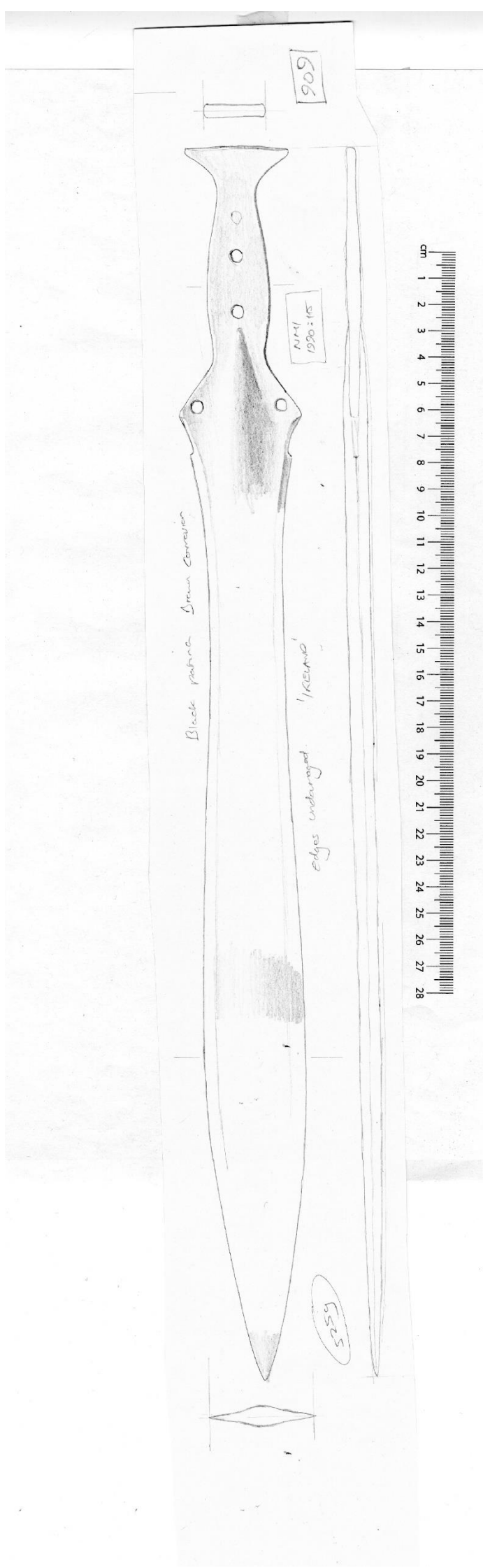
Label: LUTHERMORE BOL, CO. KILDARE



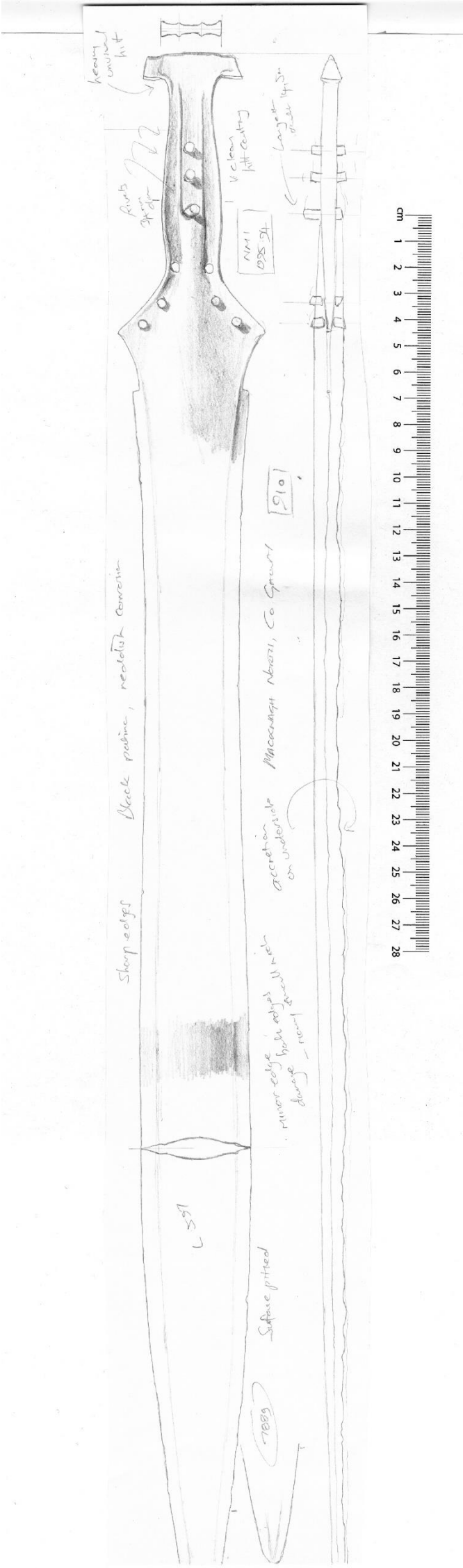
908



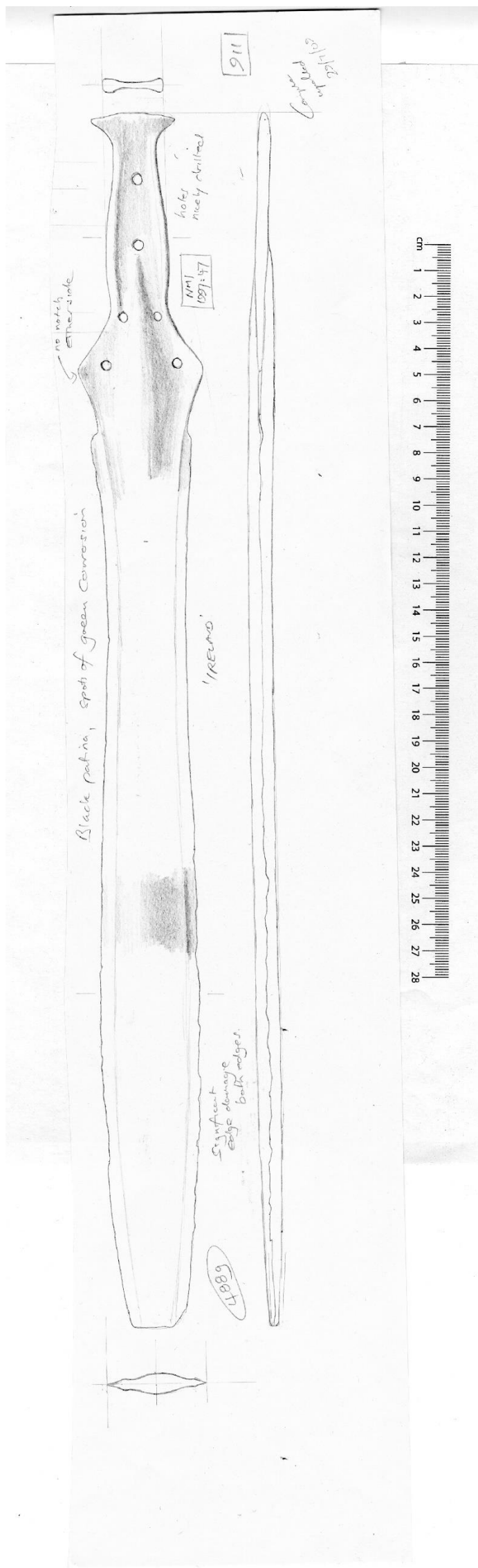
909



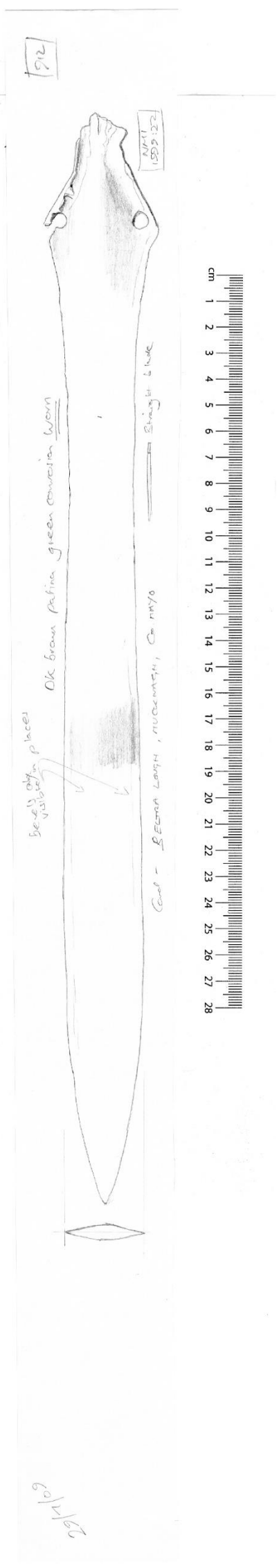
910



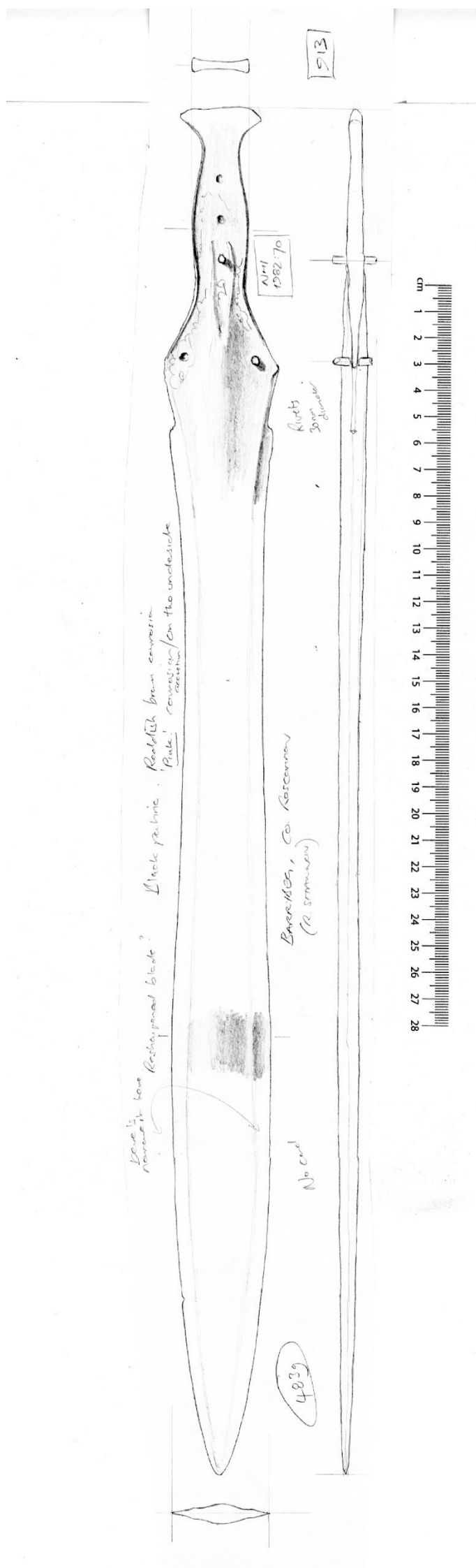
911



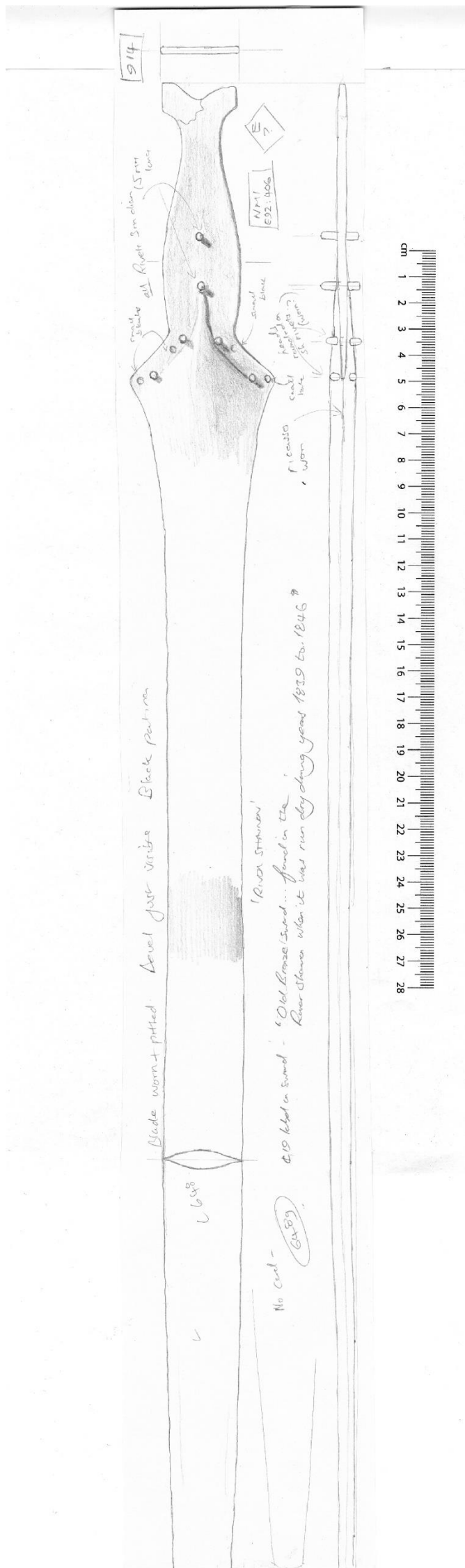
912

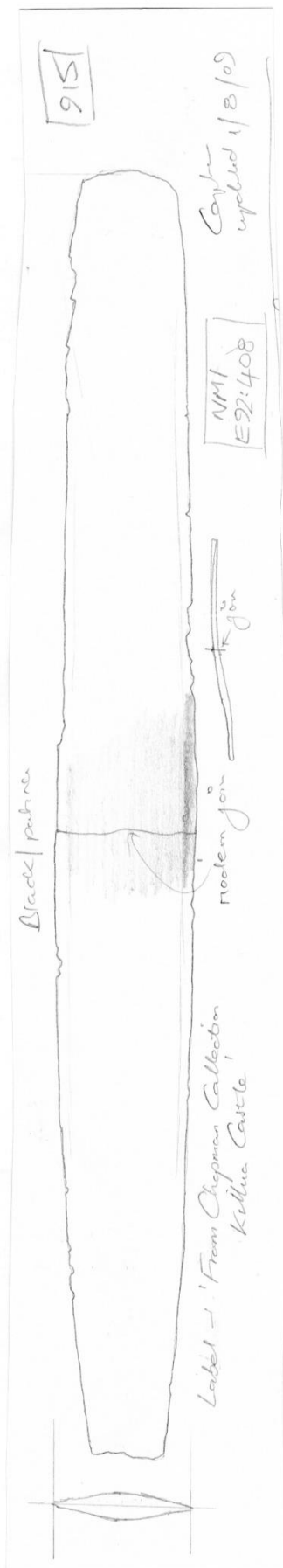


913

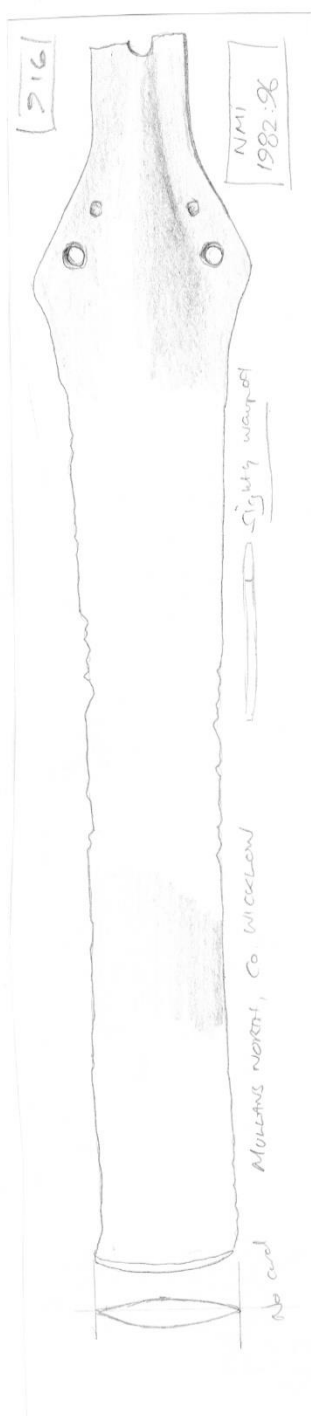


914

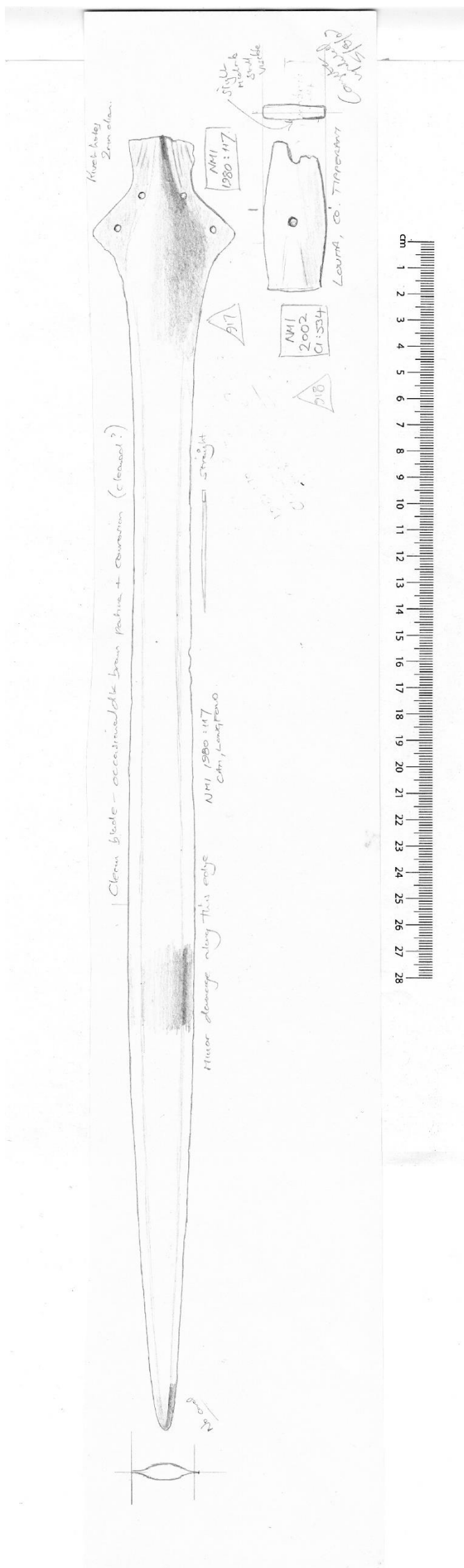


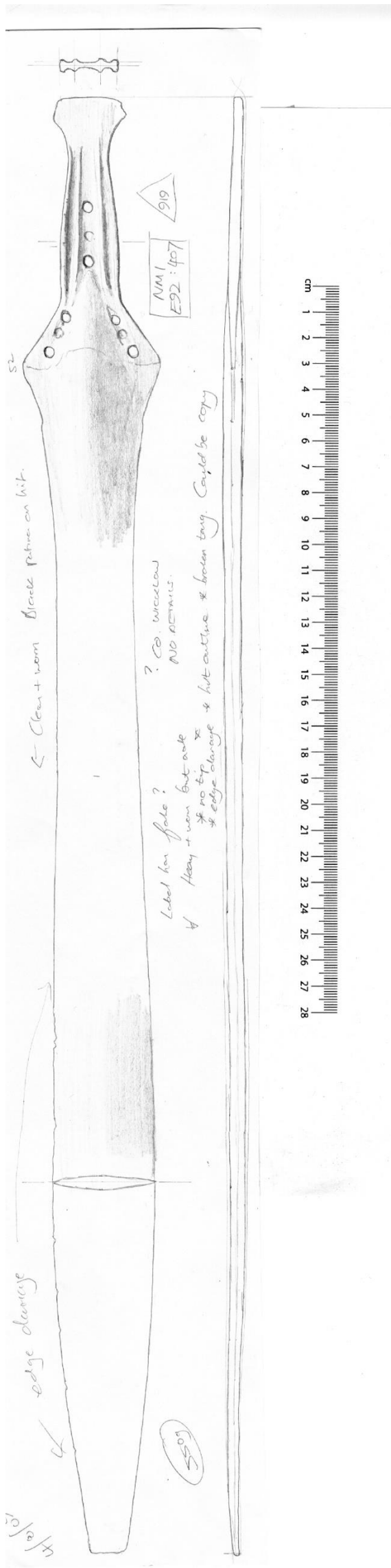


916

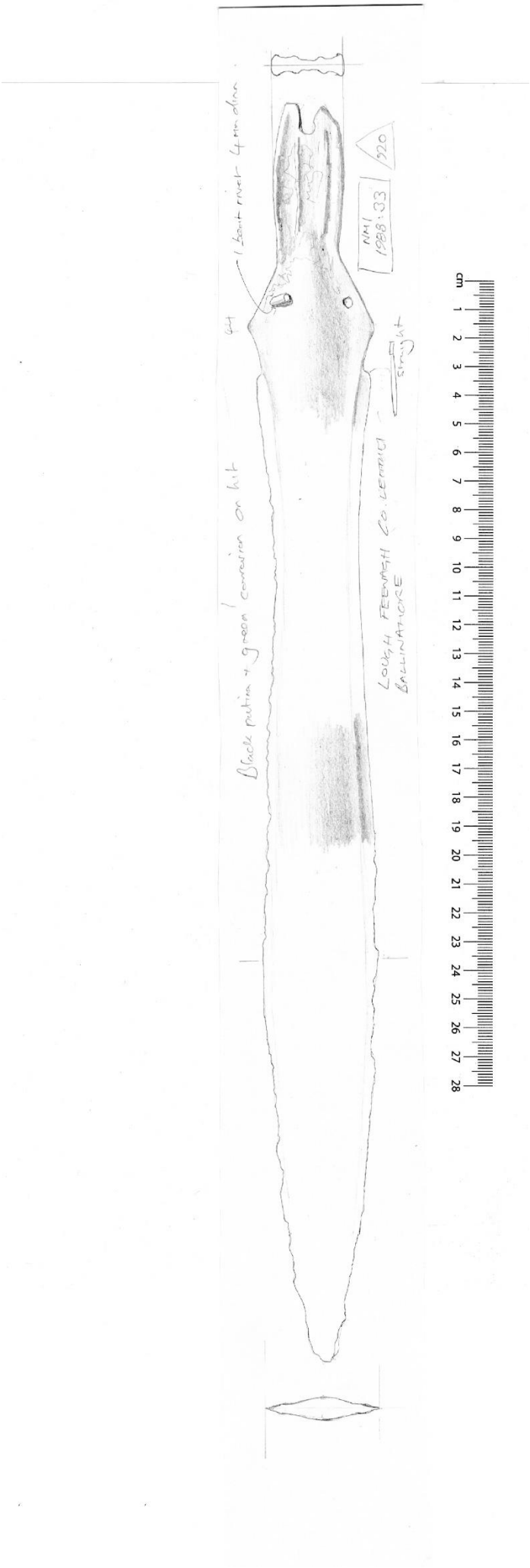


917
918

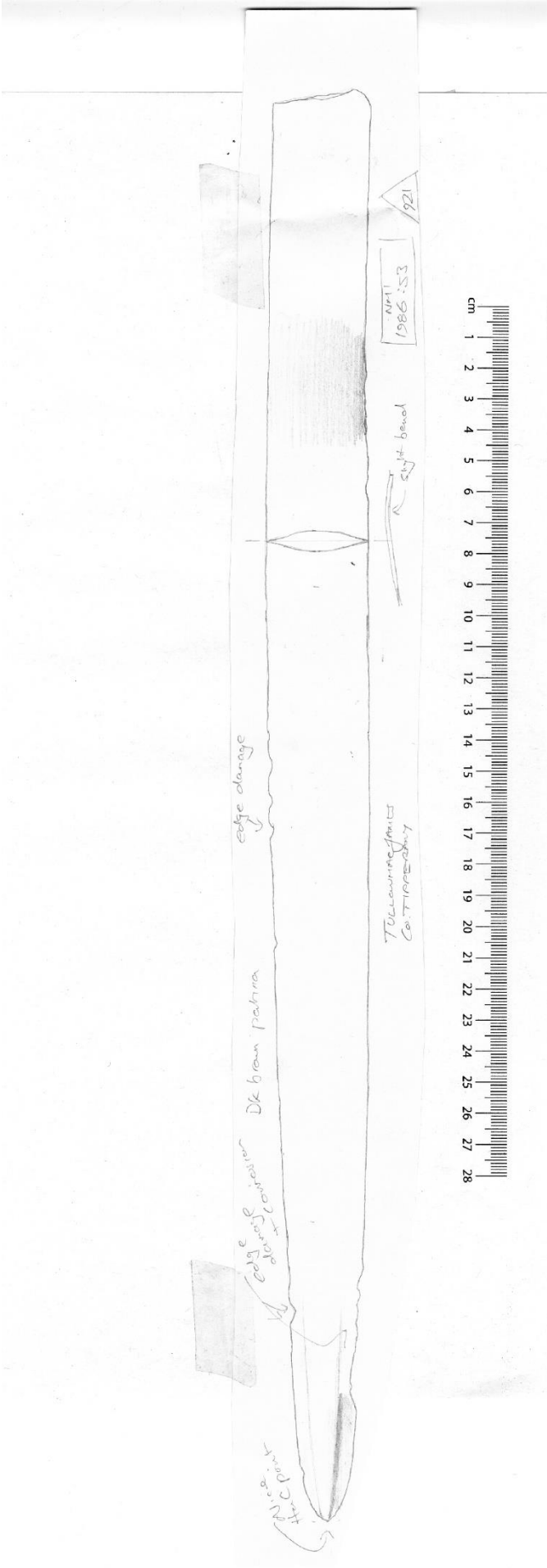




920

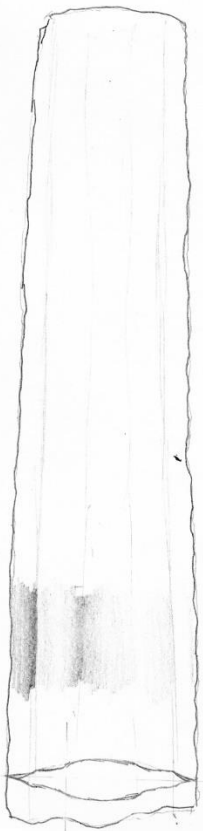


921





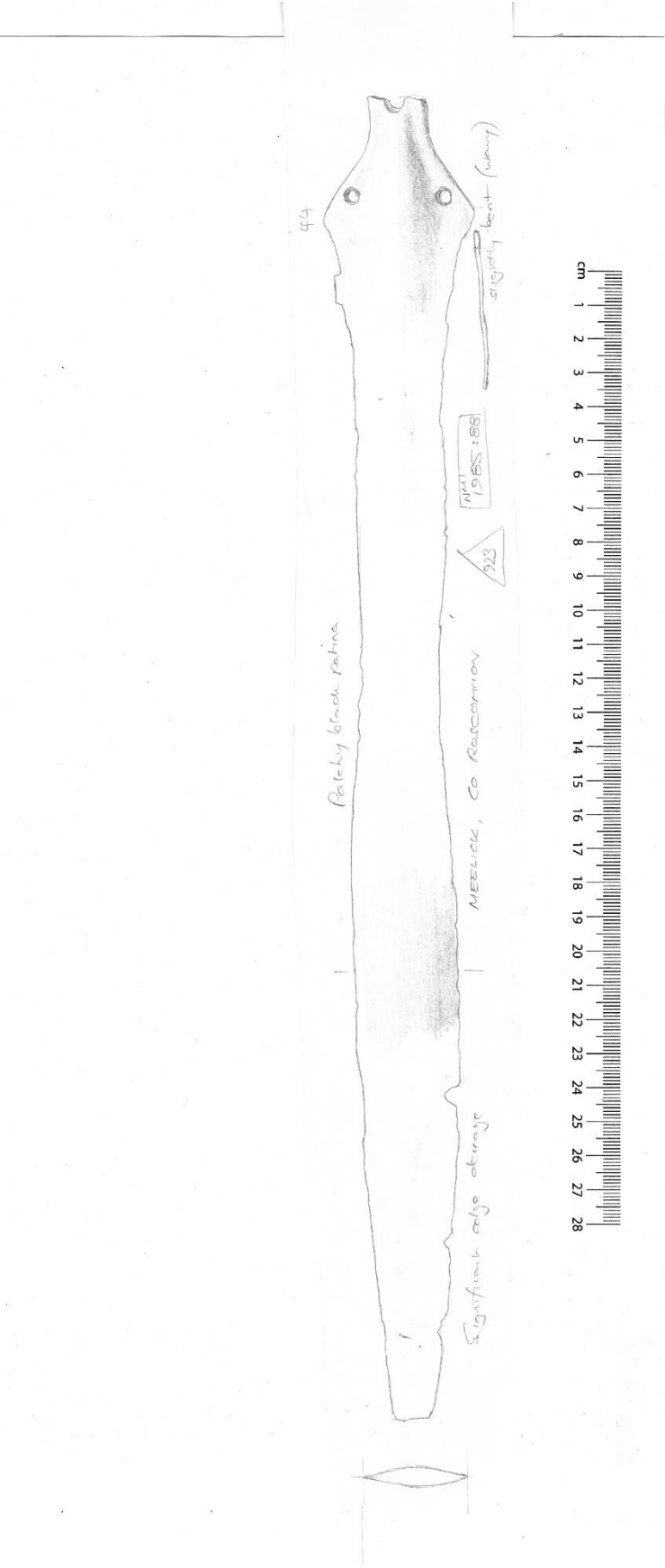
Corroded. Patchy black + dark green
patina.



Caracas, Venezuela
KREMER Co. Longford.

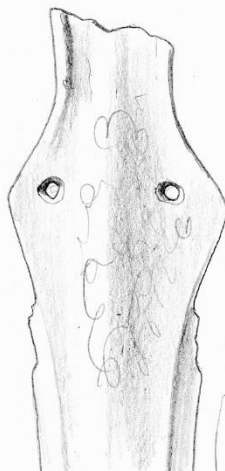


Label - Metal Detector material
a Piri Bay, Carsten, Longford.
with flint + stonehead but
no supports of association.



924

DK brown patina, green corrosion



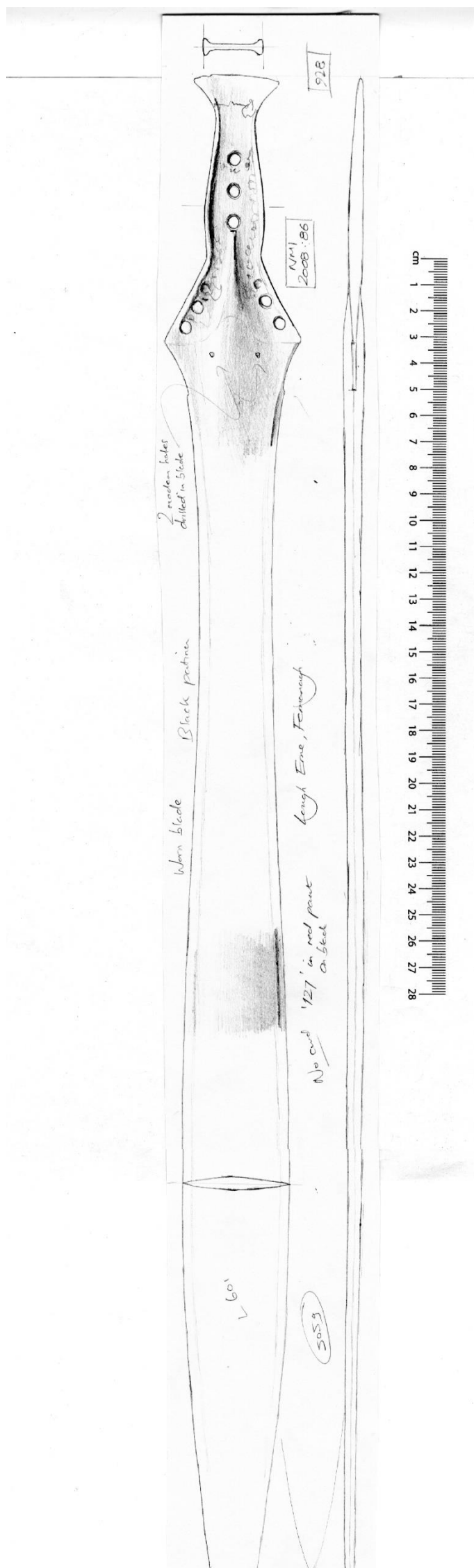
NM1
2008: 20

Alto - 1 x doublehanded / spearbutt (23)
- 2 x spk (21-22)

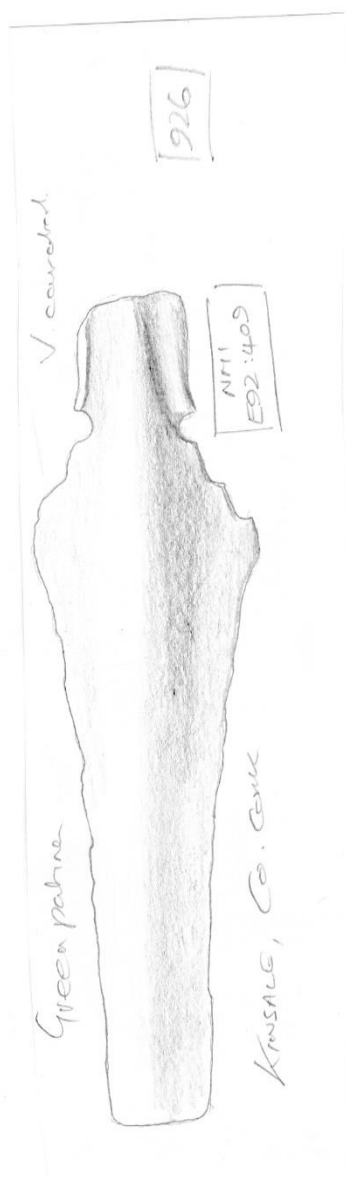
? (H) MINE, CO. WESTMEATH
NO DETAILS ON CARD.



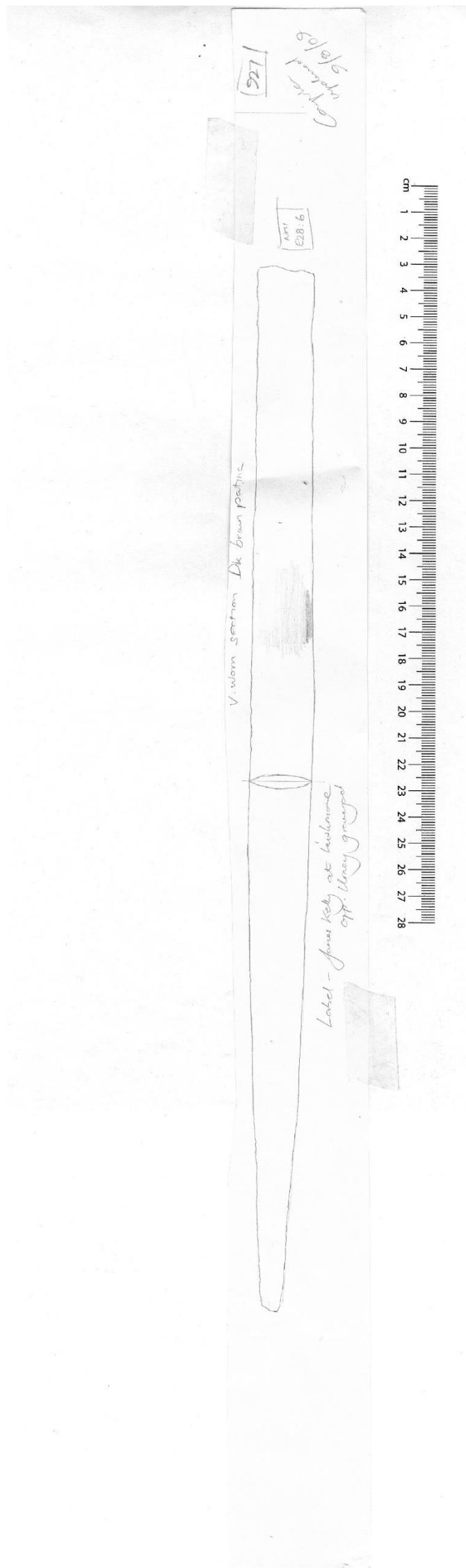
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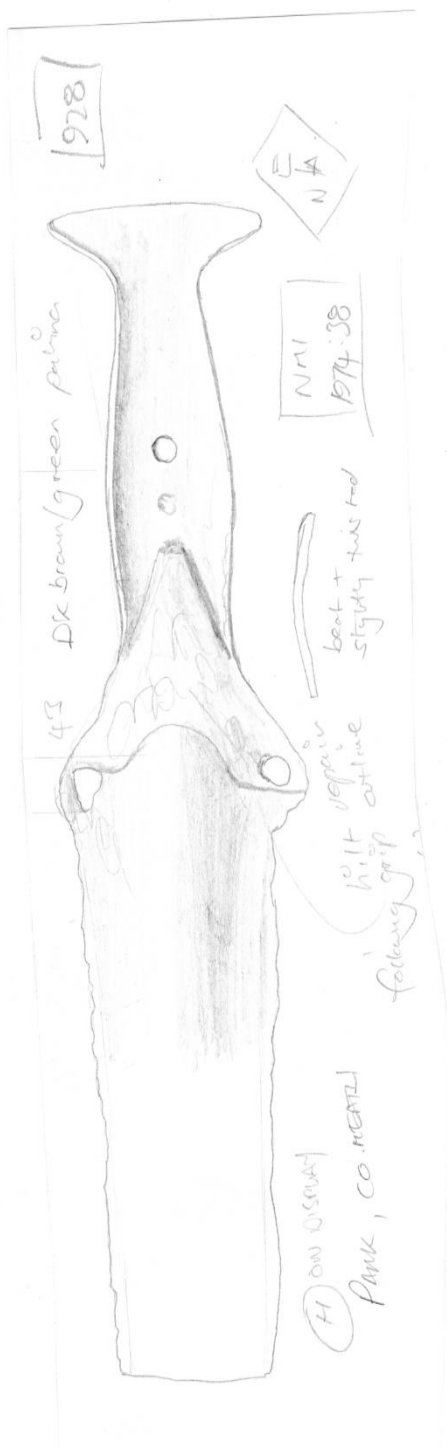
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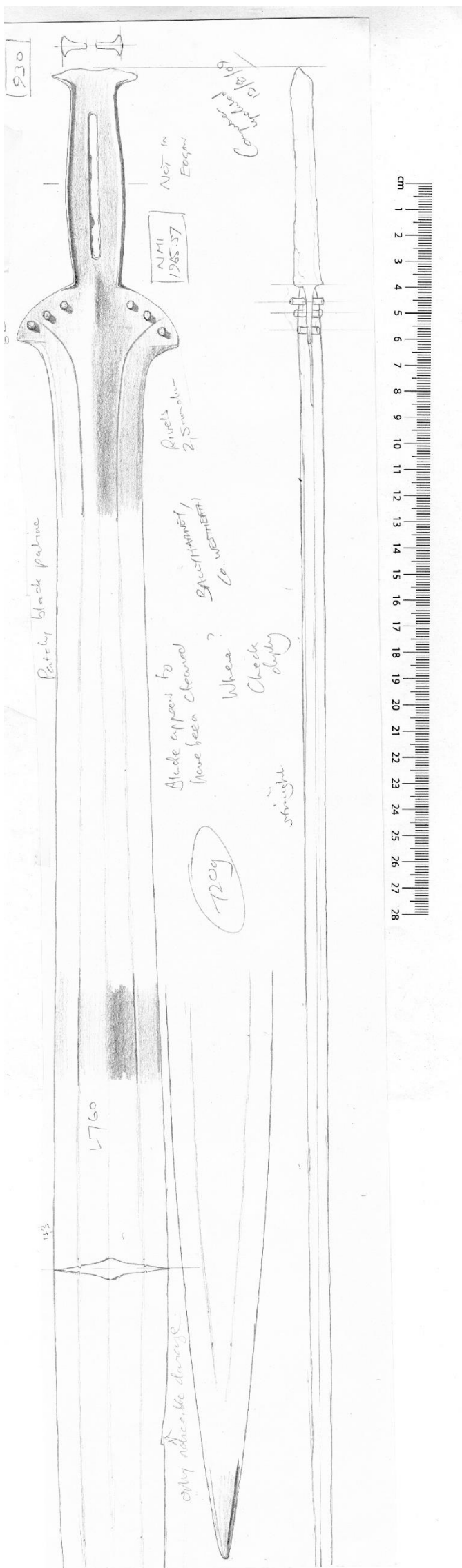
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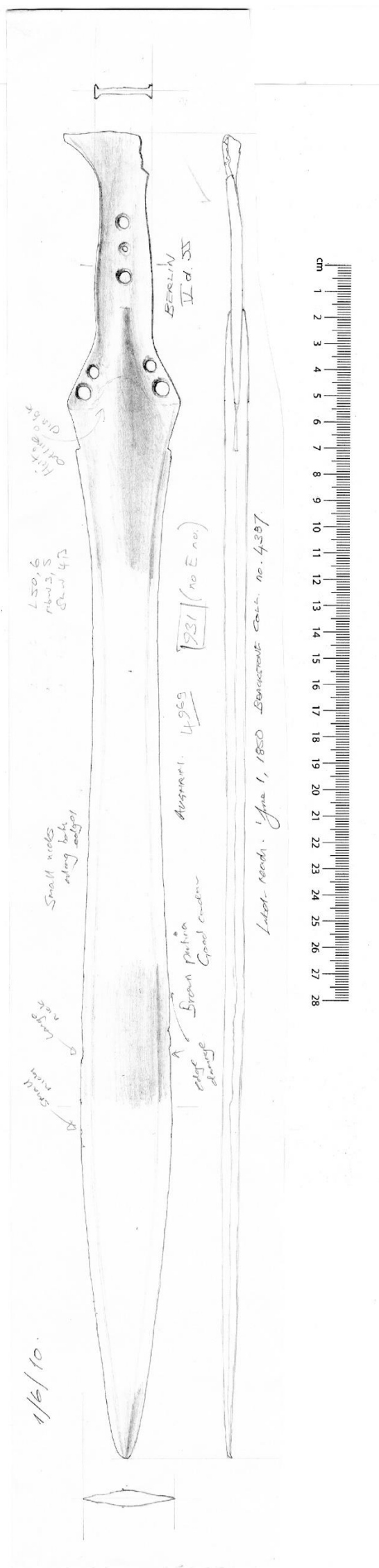
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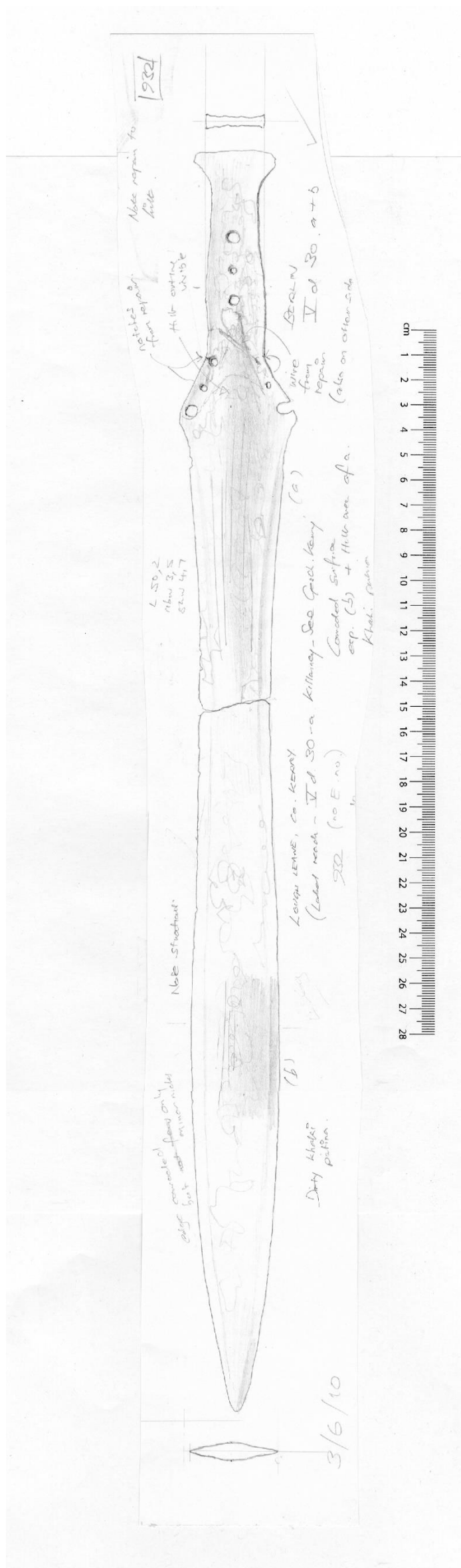


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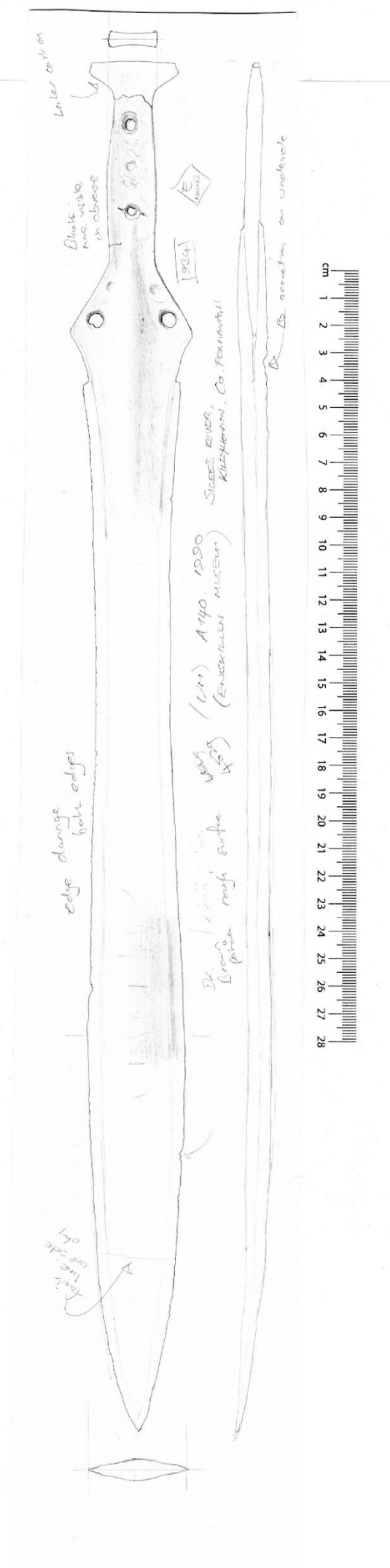


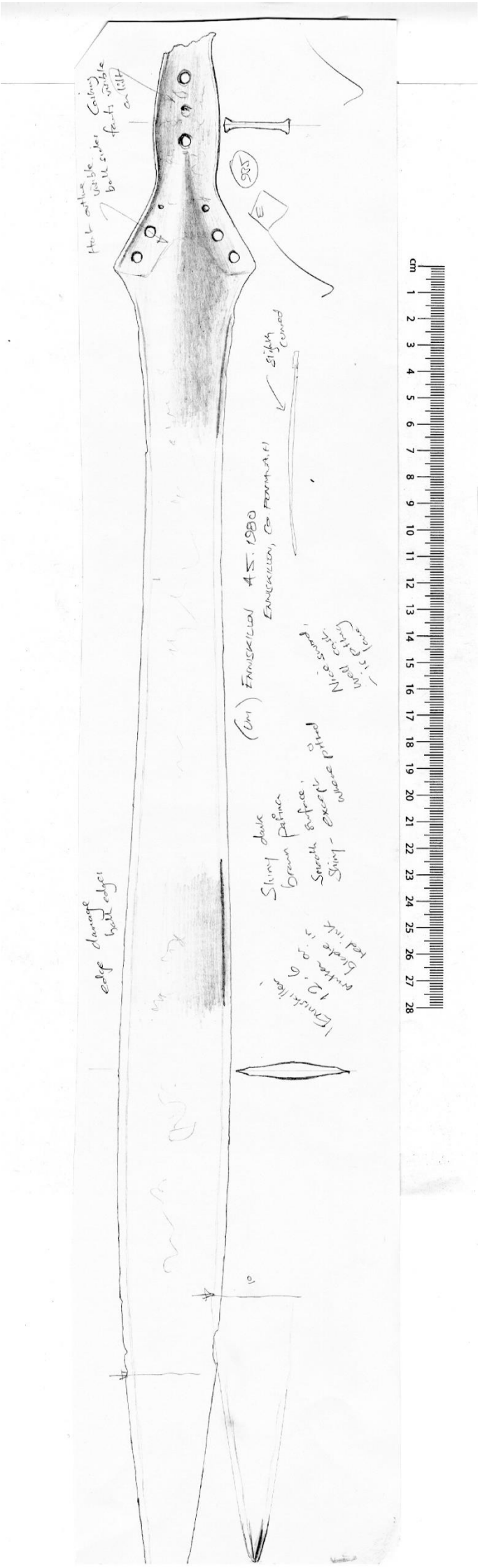
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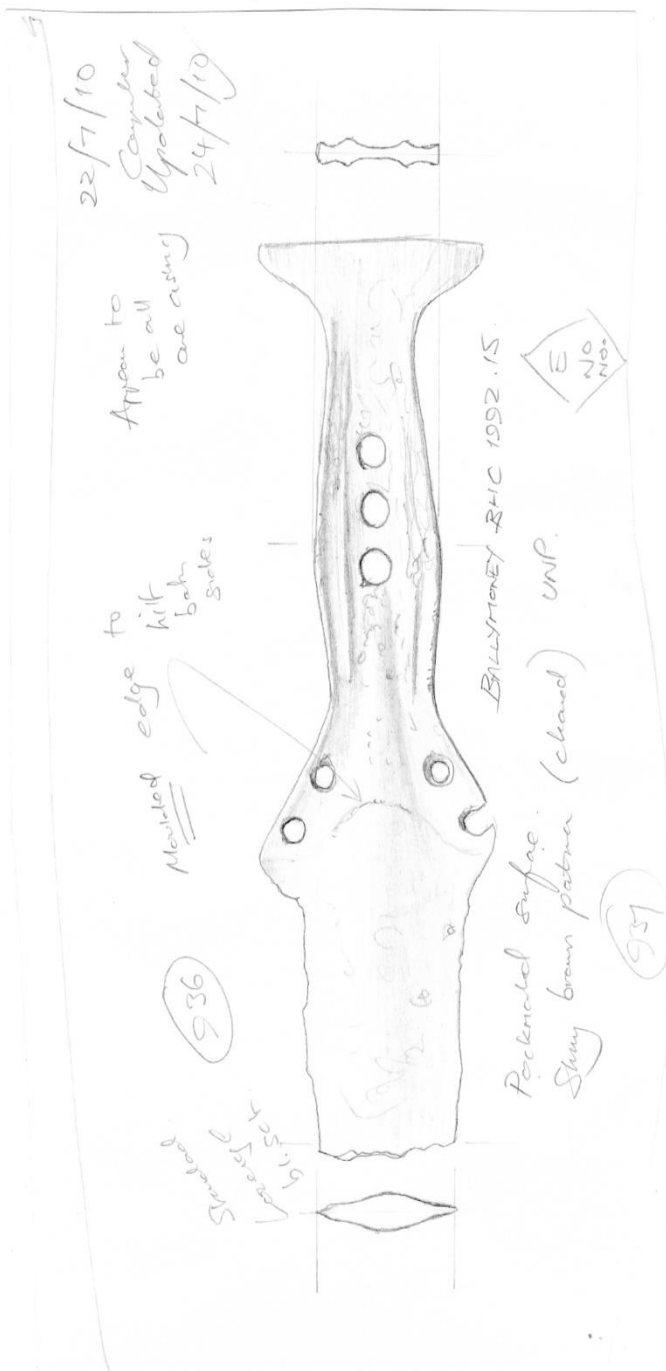


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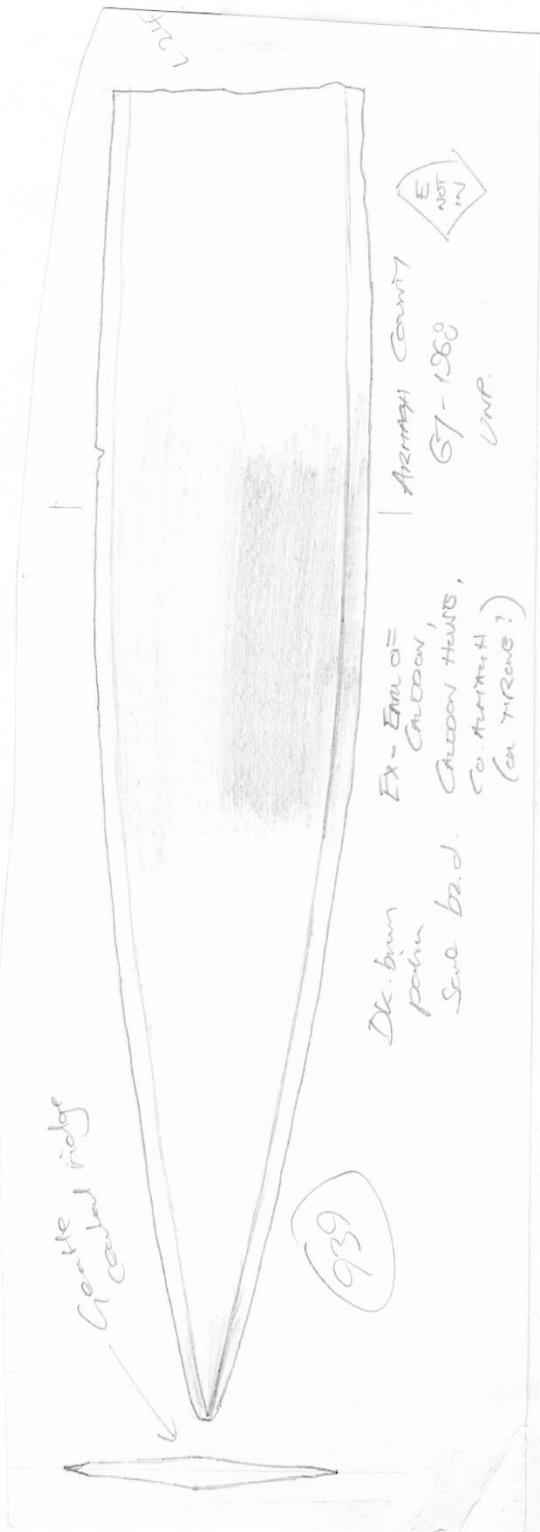


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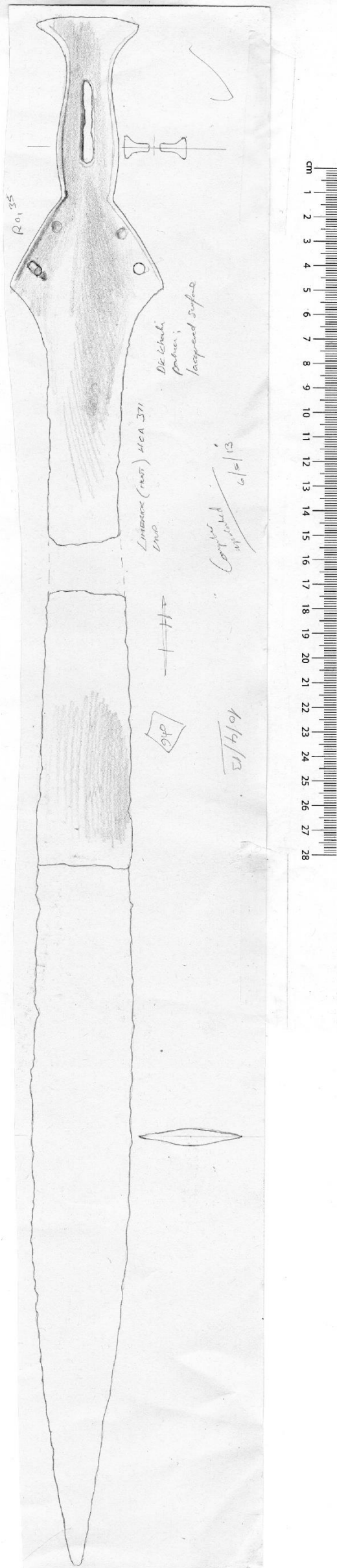


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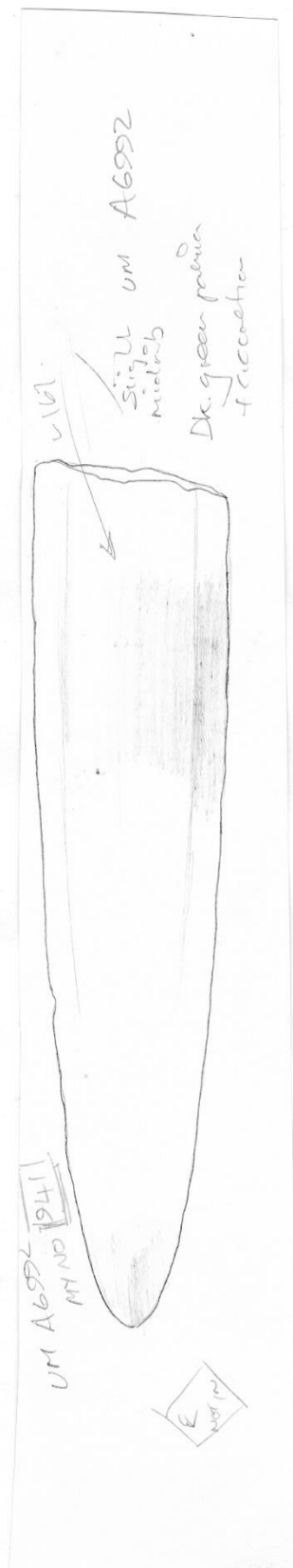




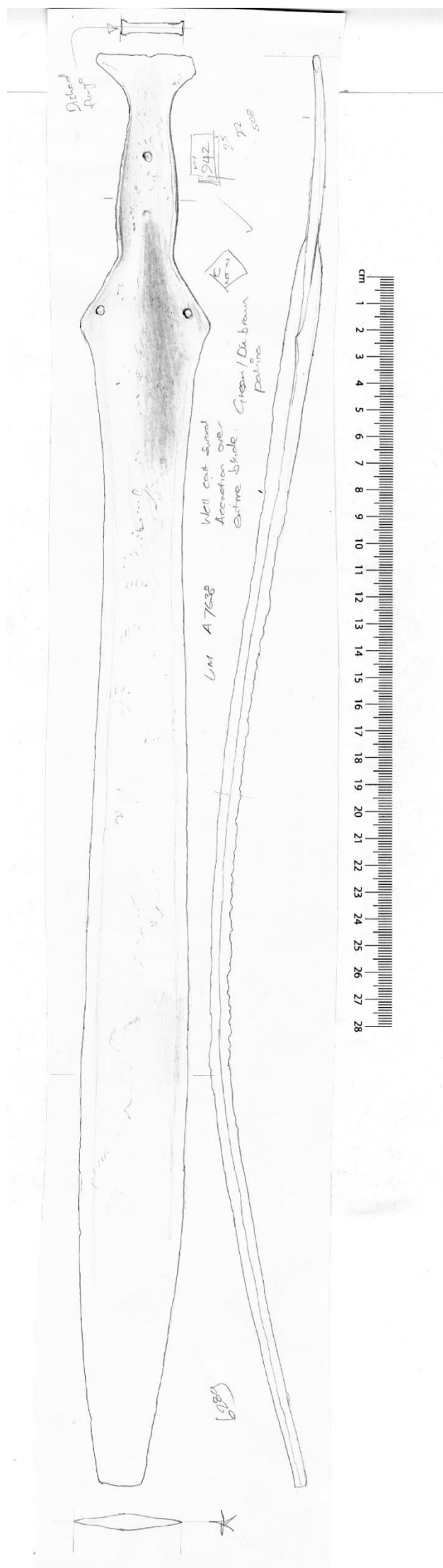
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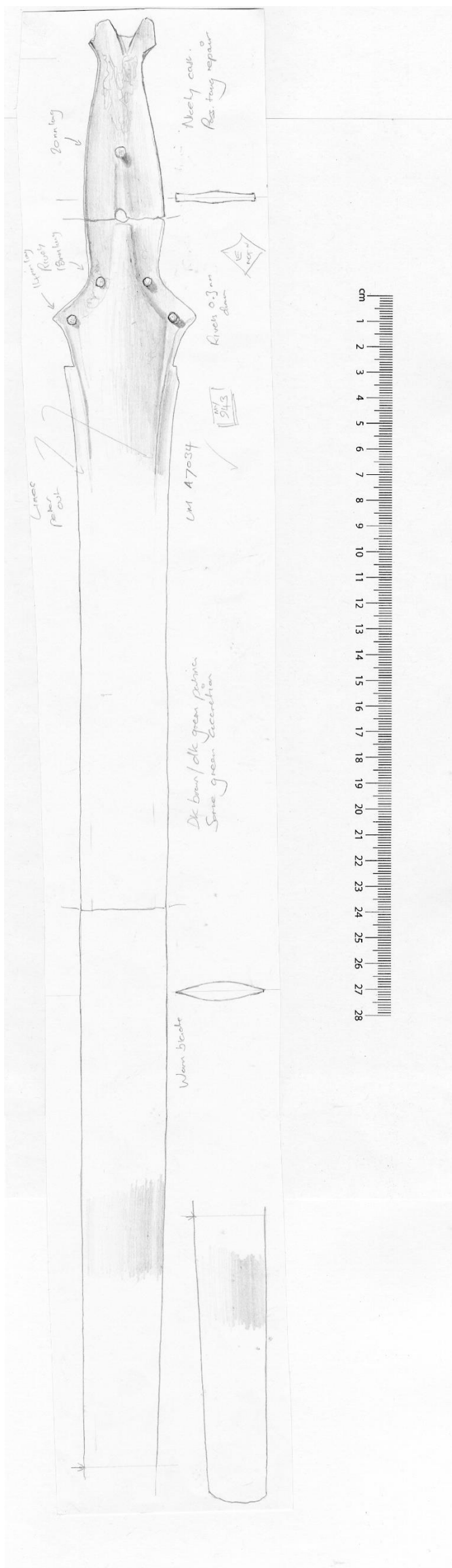
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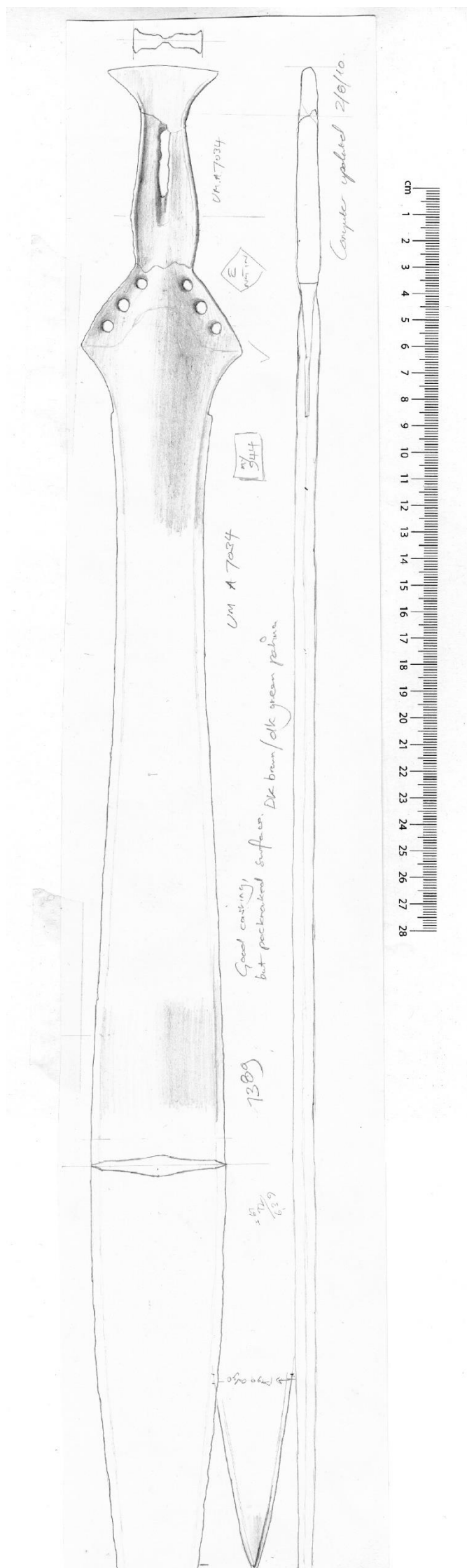
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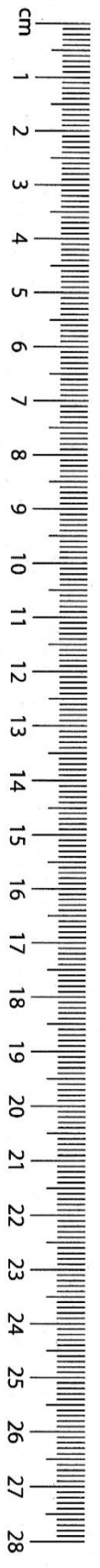
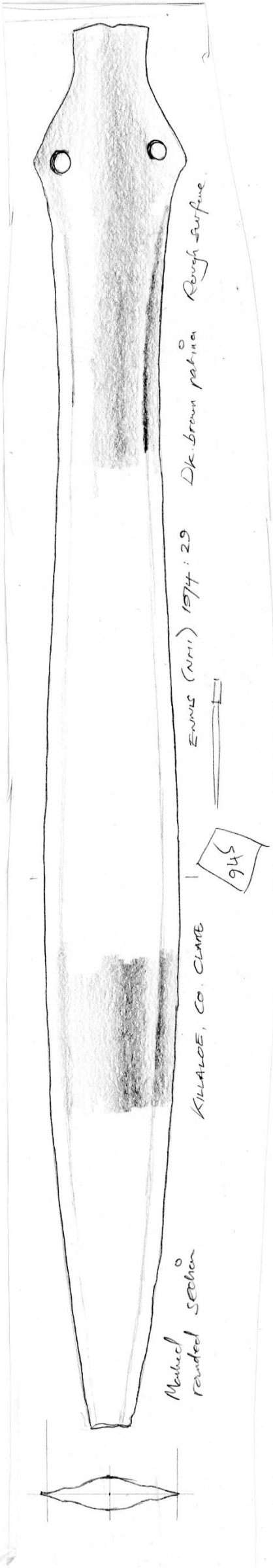
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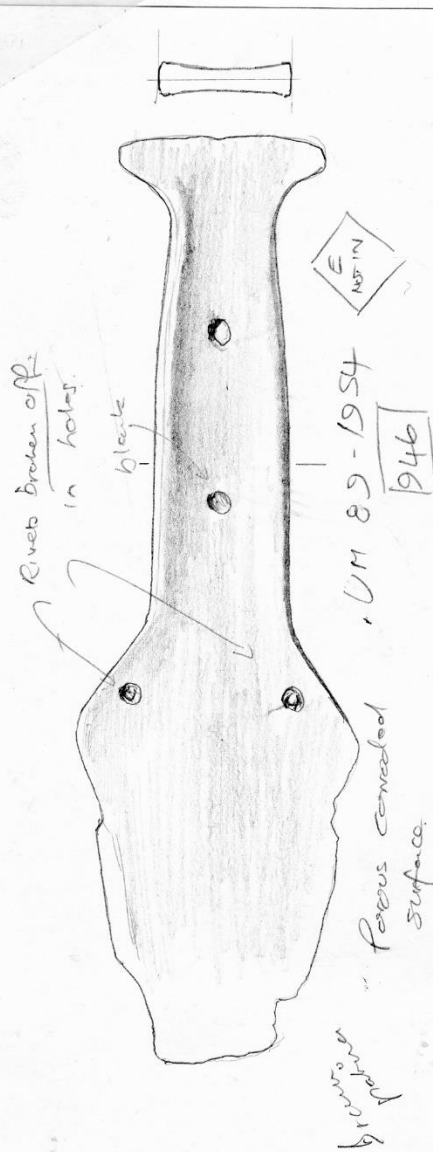
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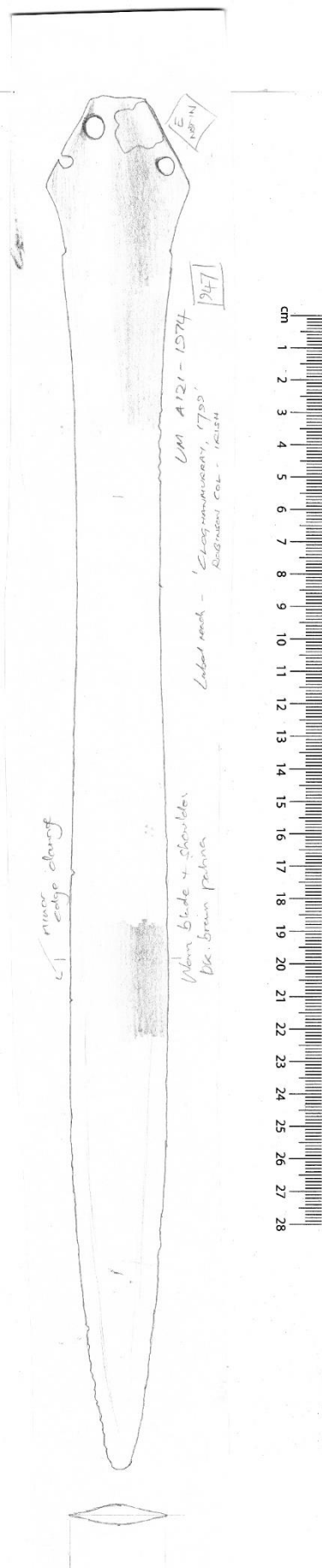
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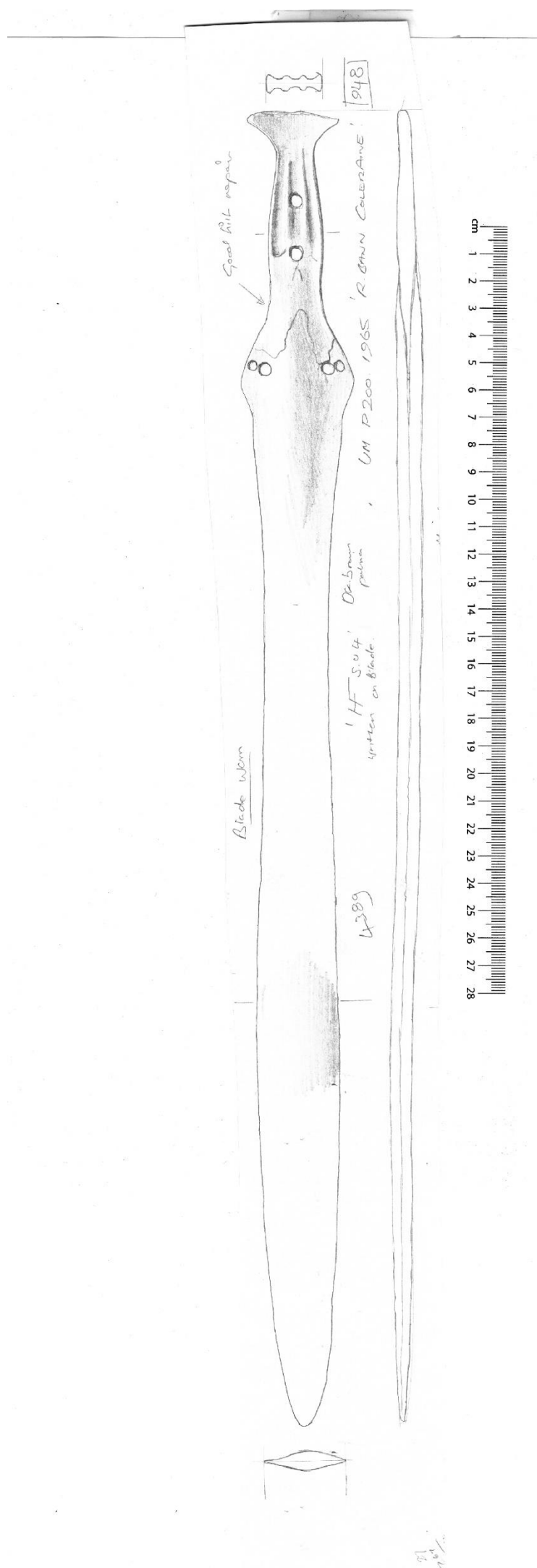
Fakes of the Day!
A 115-1974 = FAKE



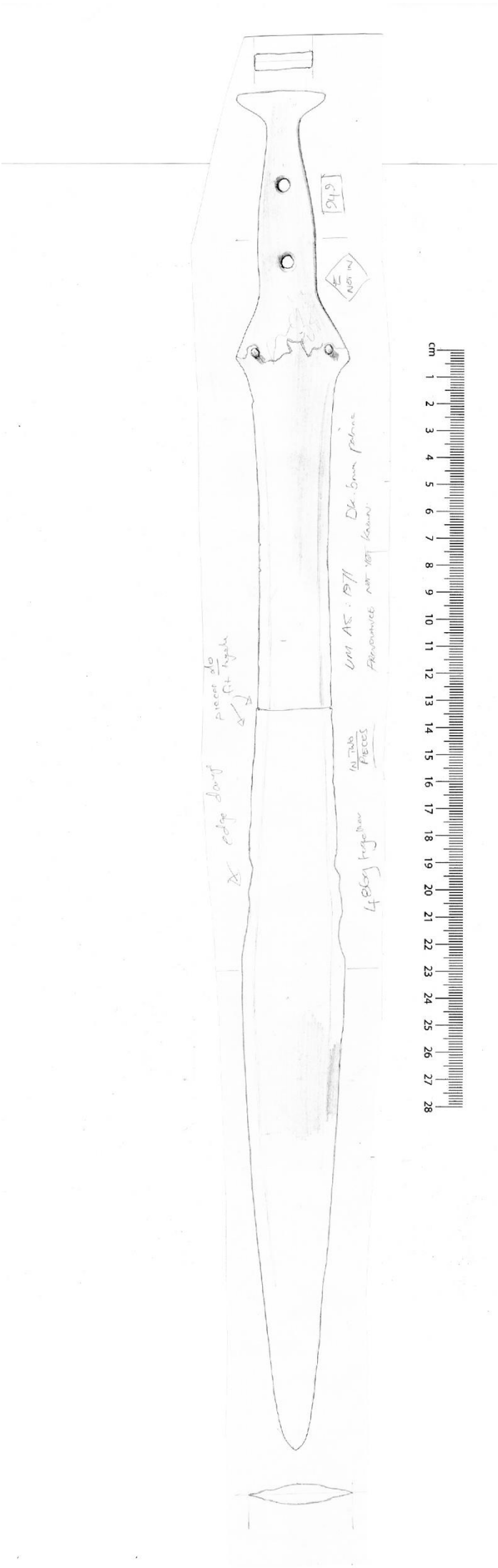
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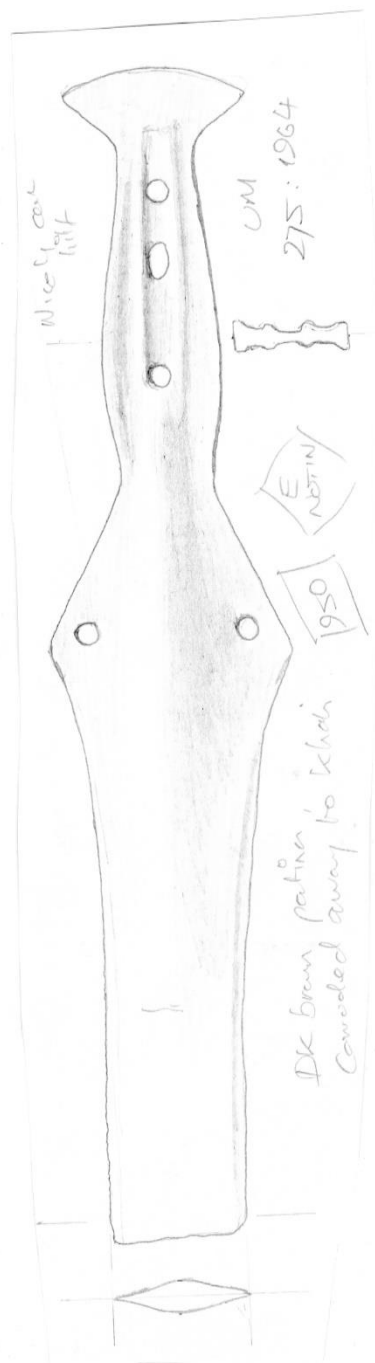
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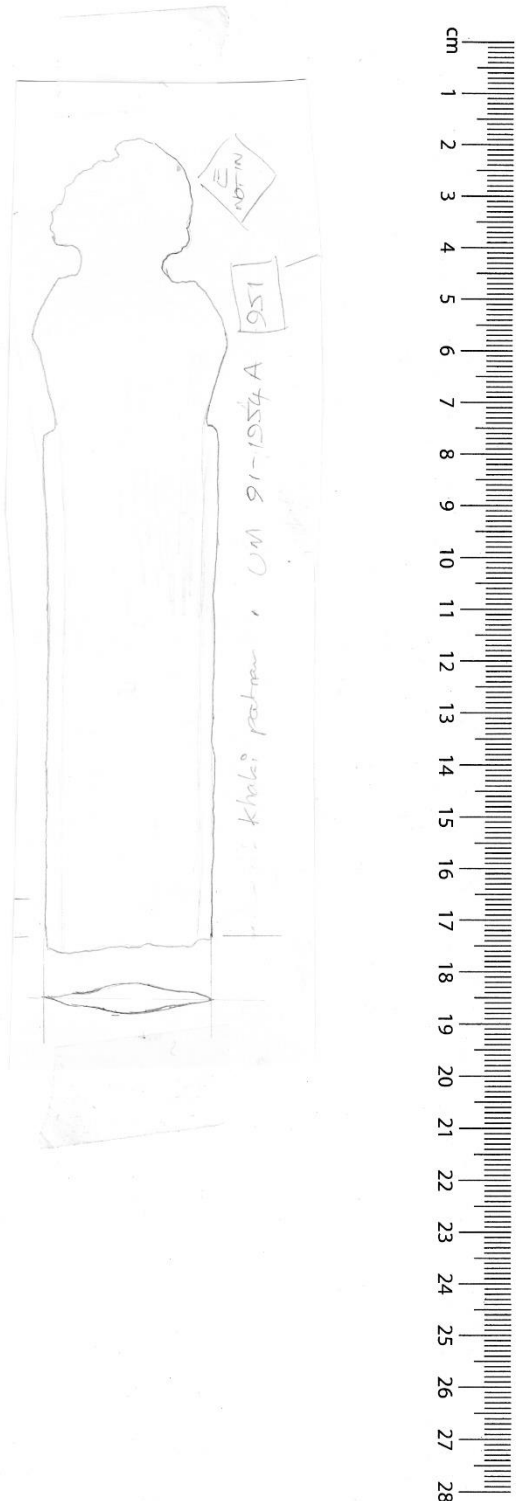
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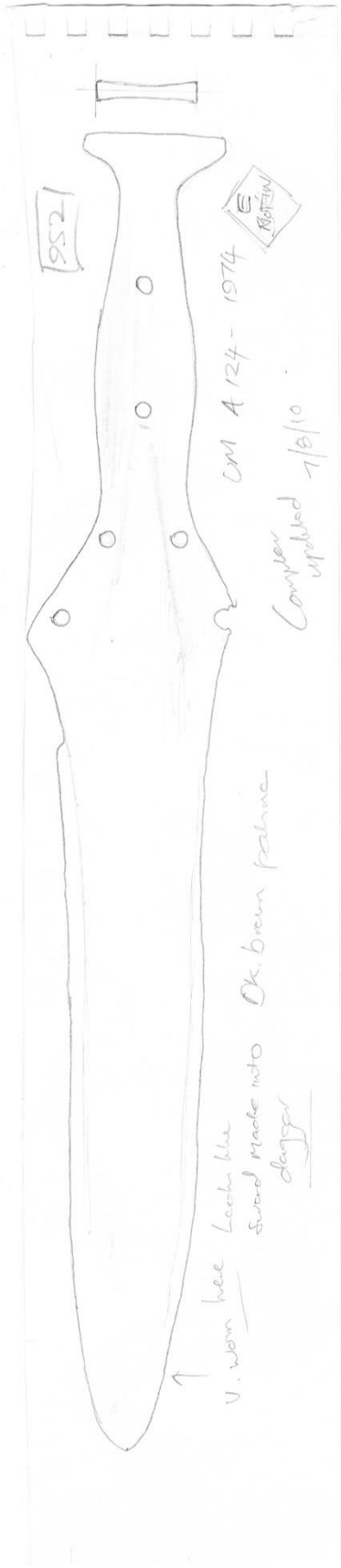


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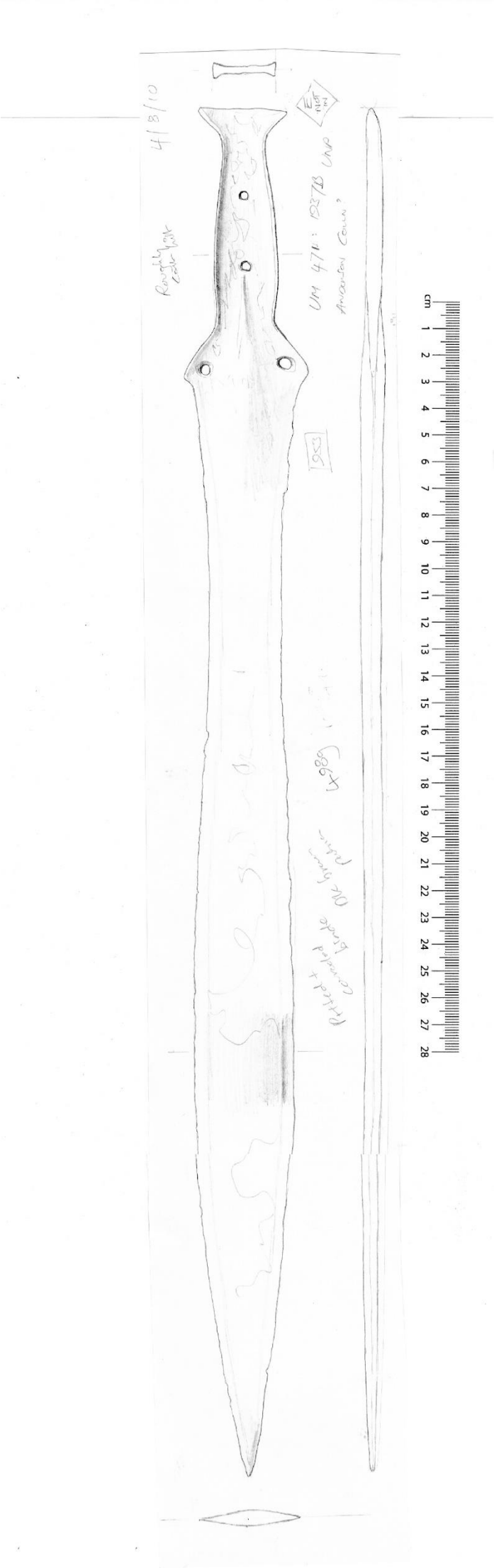


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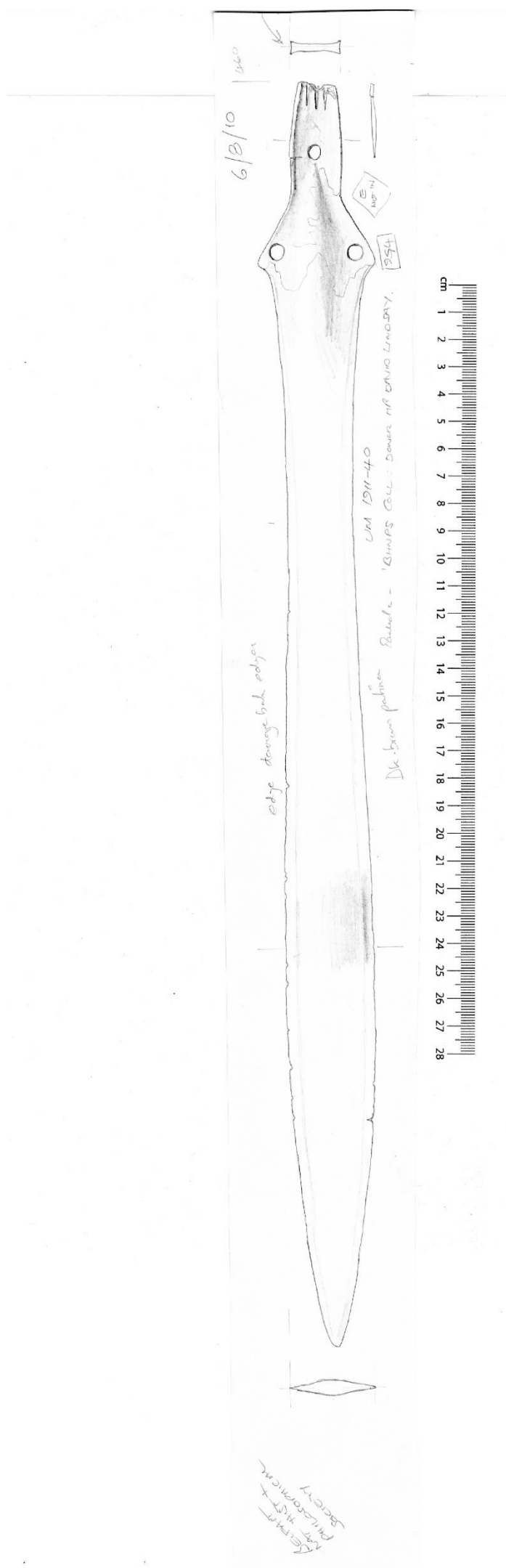




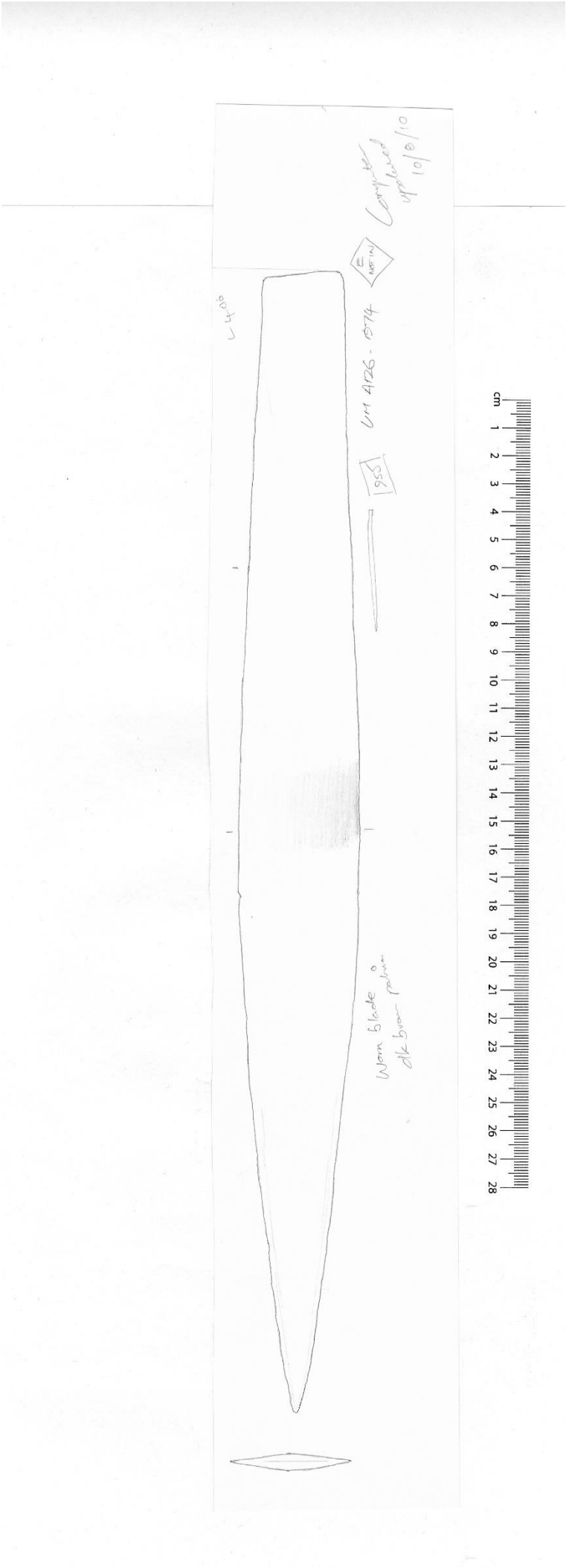
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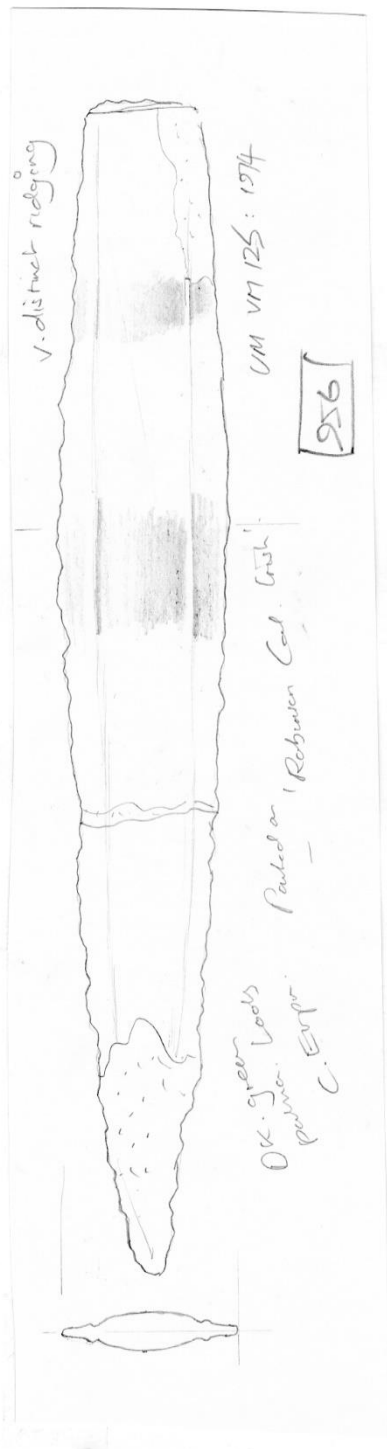
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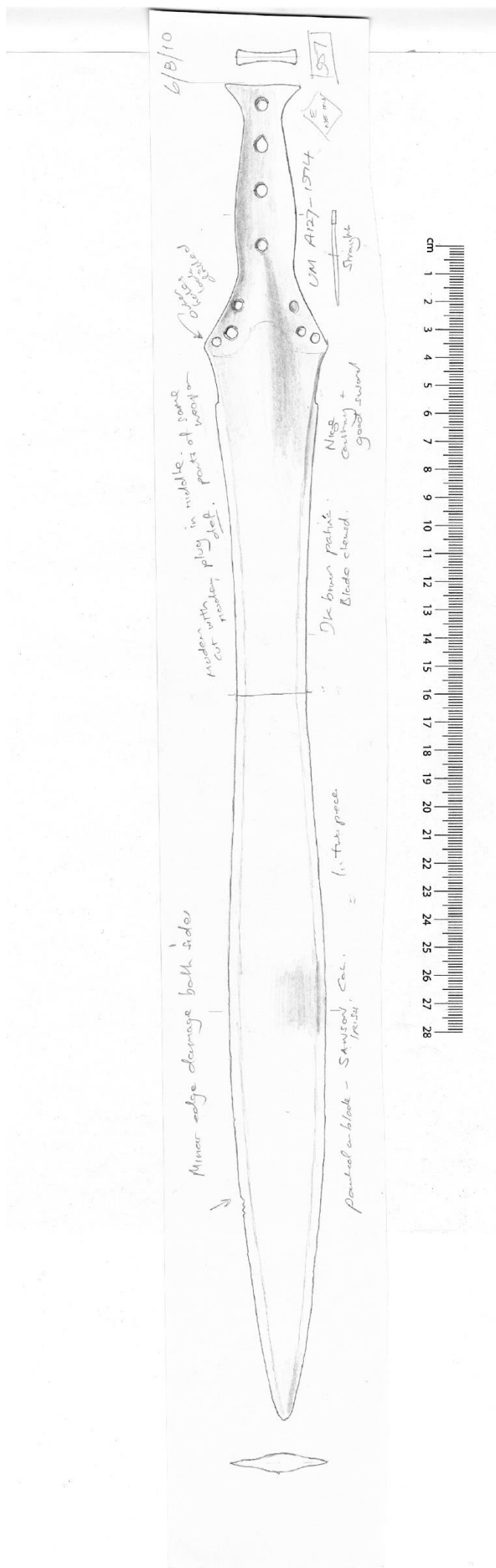
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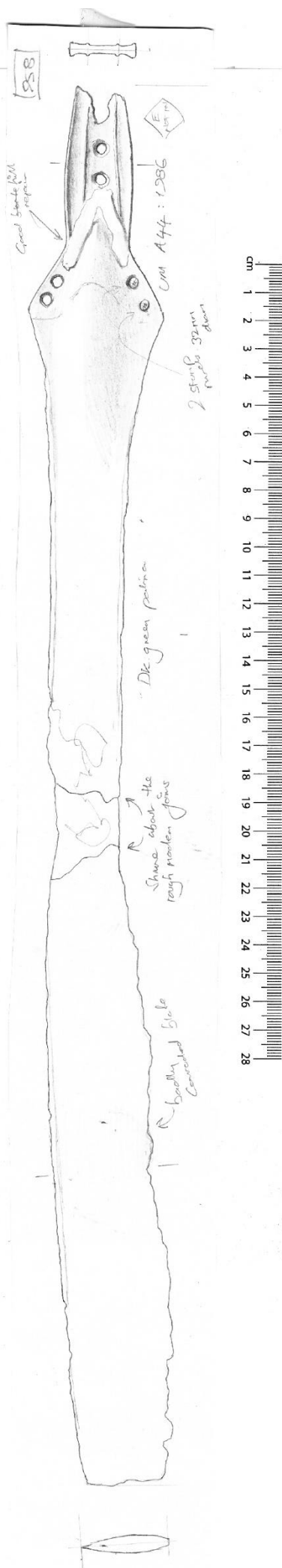
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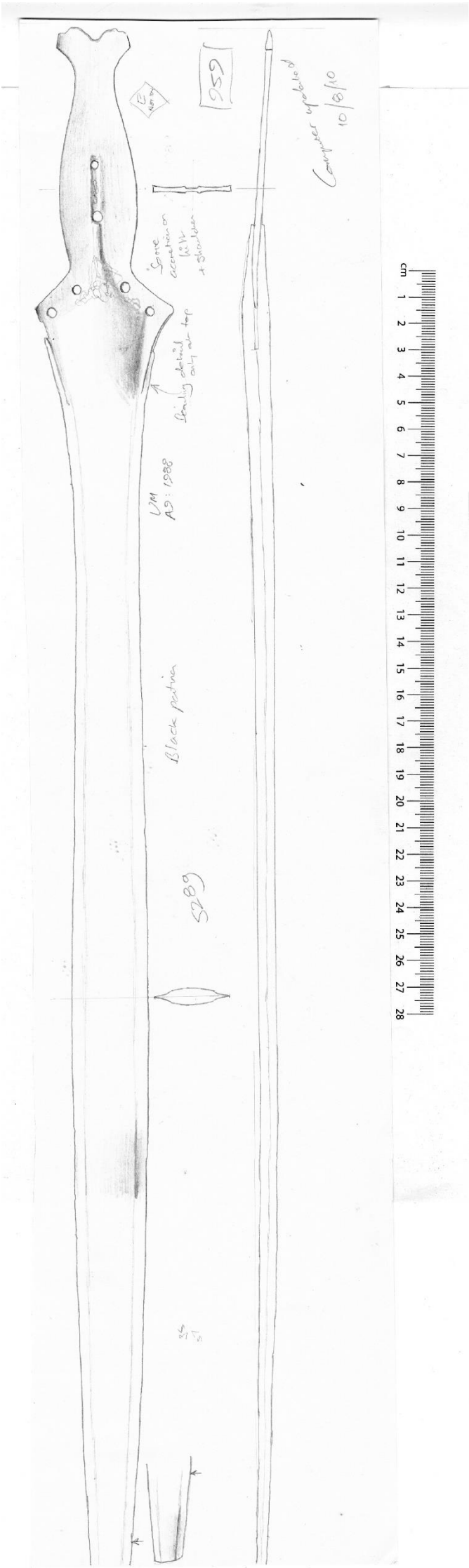
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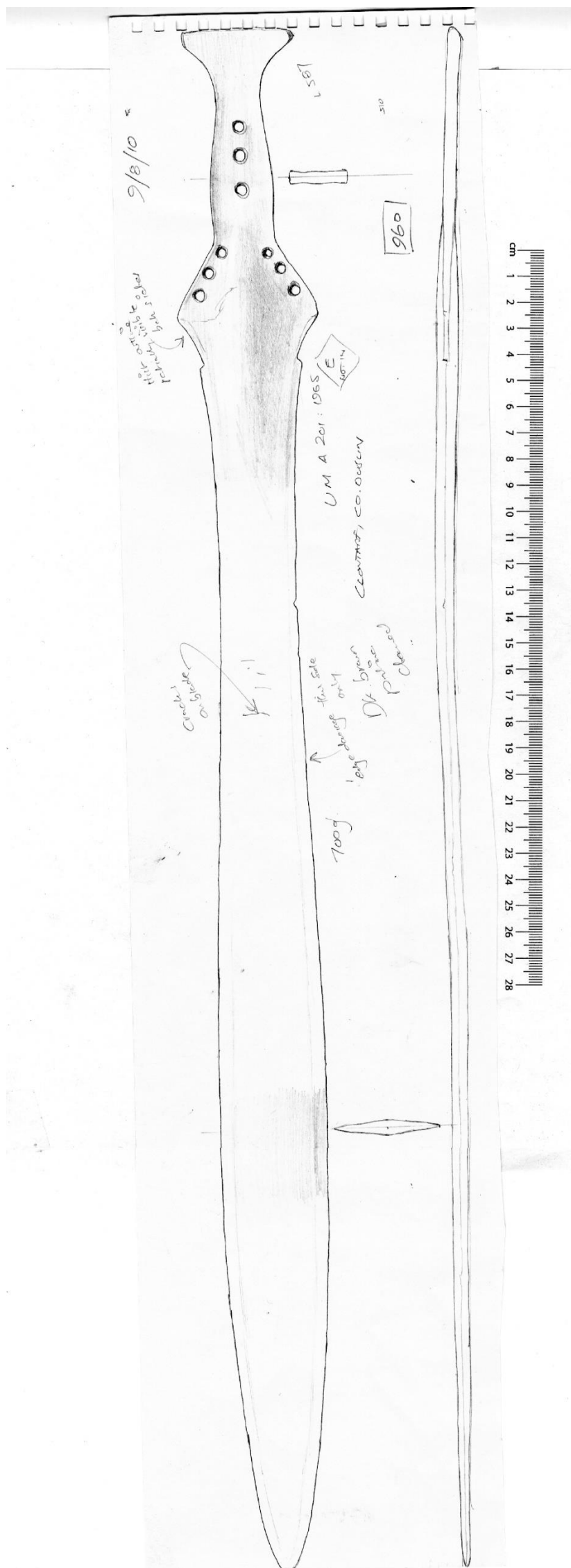
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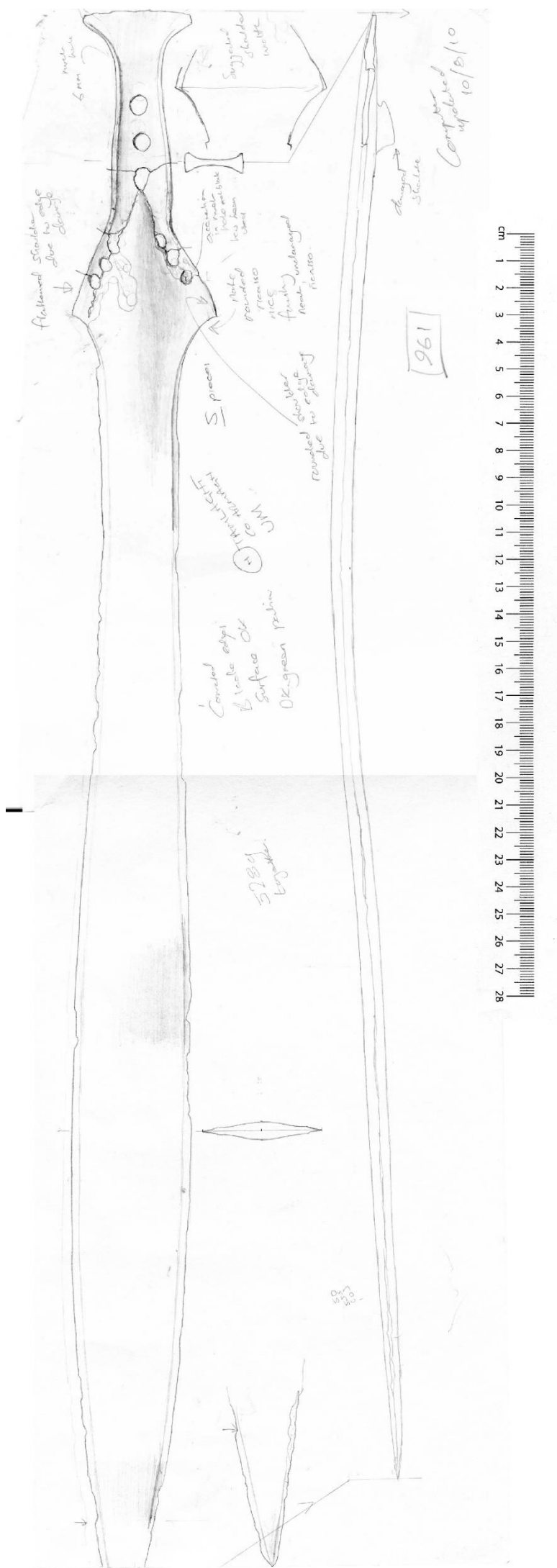
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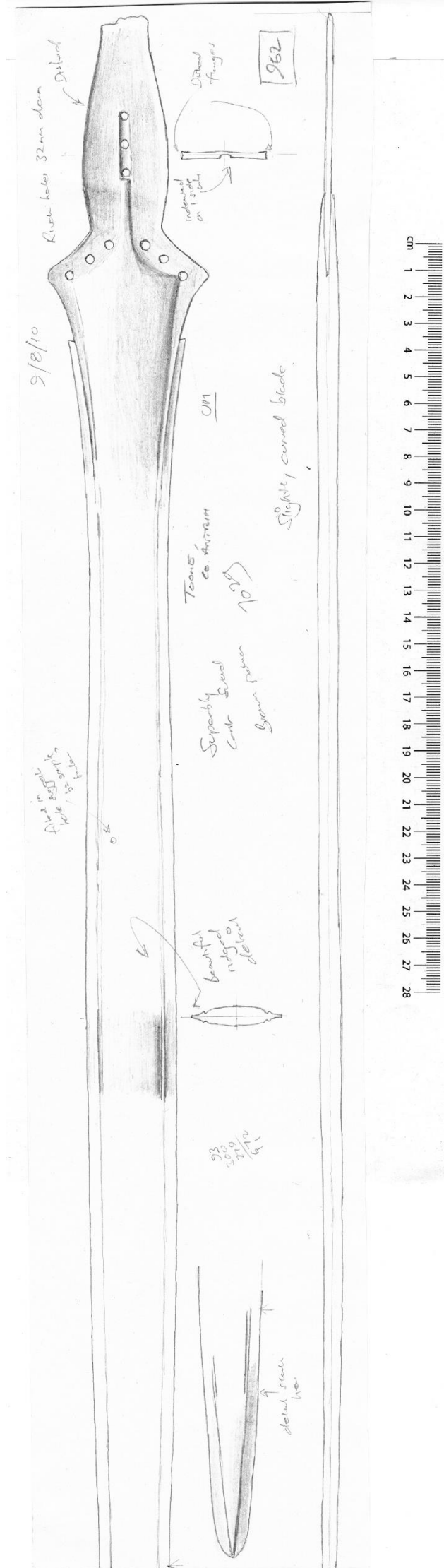
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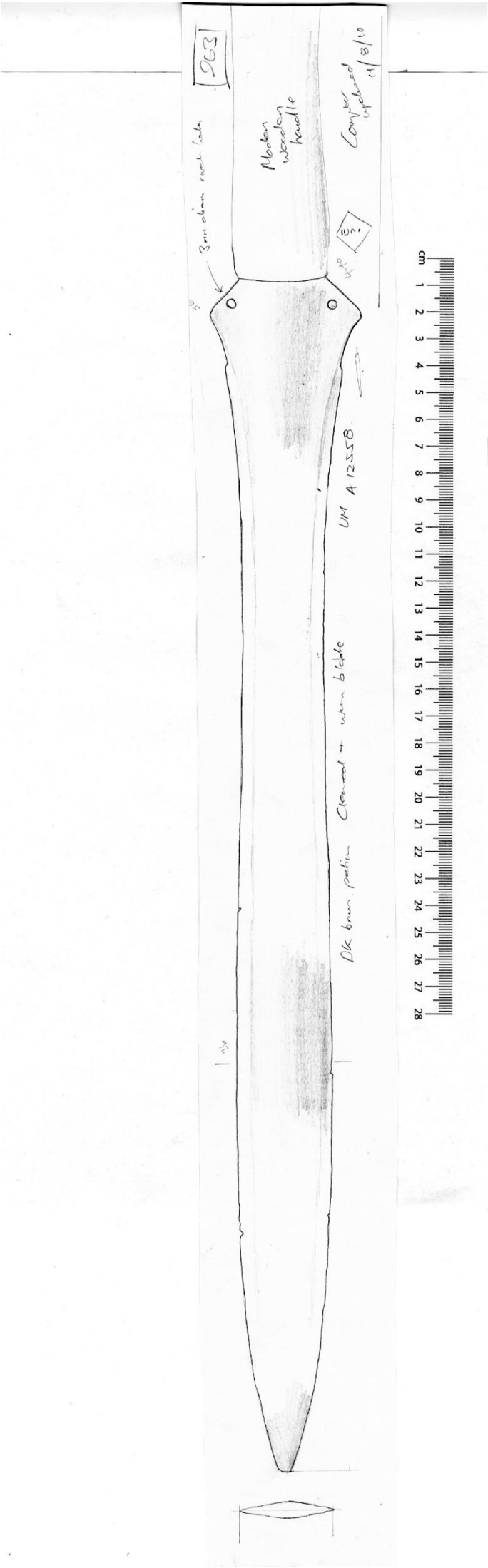
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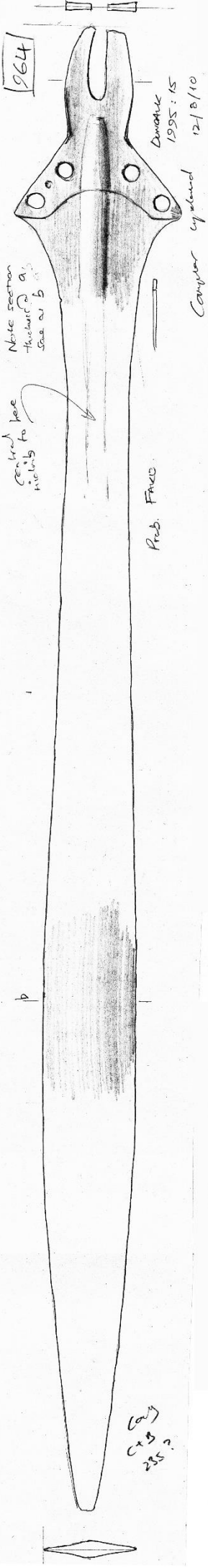
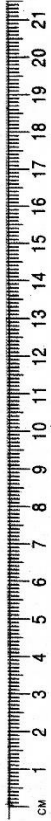
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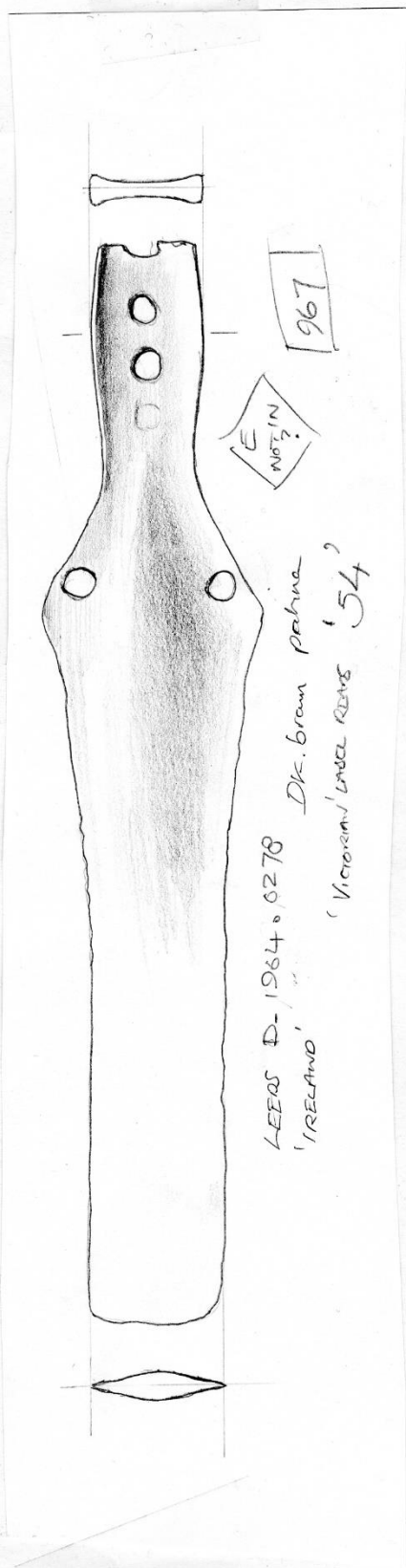
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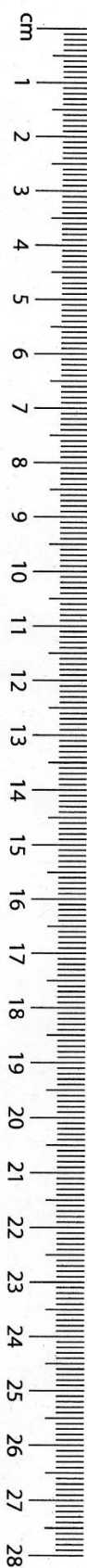
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LEEDS D-196400278
'IRELAND'
Dk. brown patina
'VICTORIAN' LATER REARS
'54'

967
E NOT IN





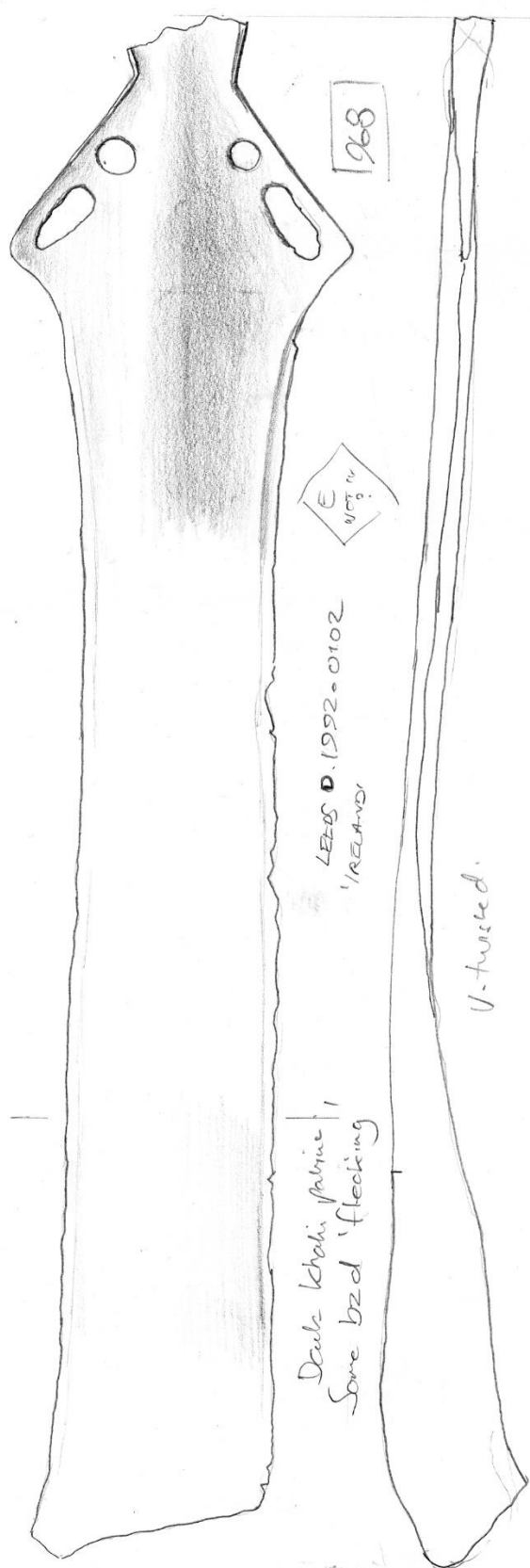
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E
not in

LEDS D 1992-0102
1/1/RELAND

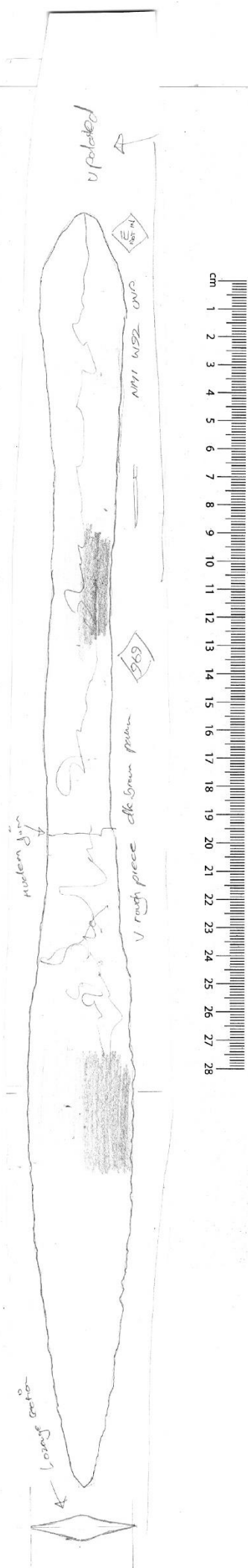
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Some bzd, flecking

U-twisted



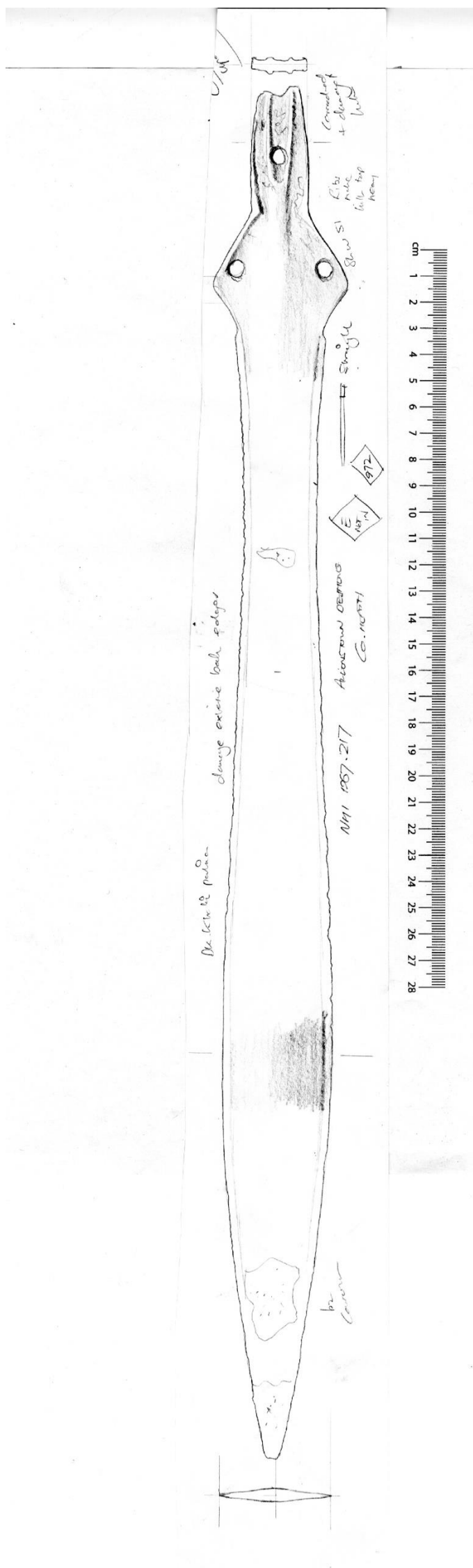
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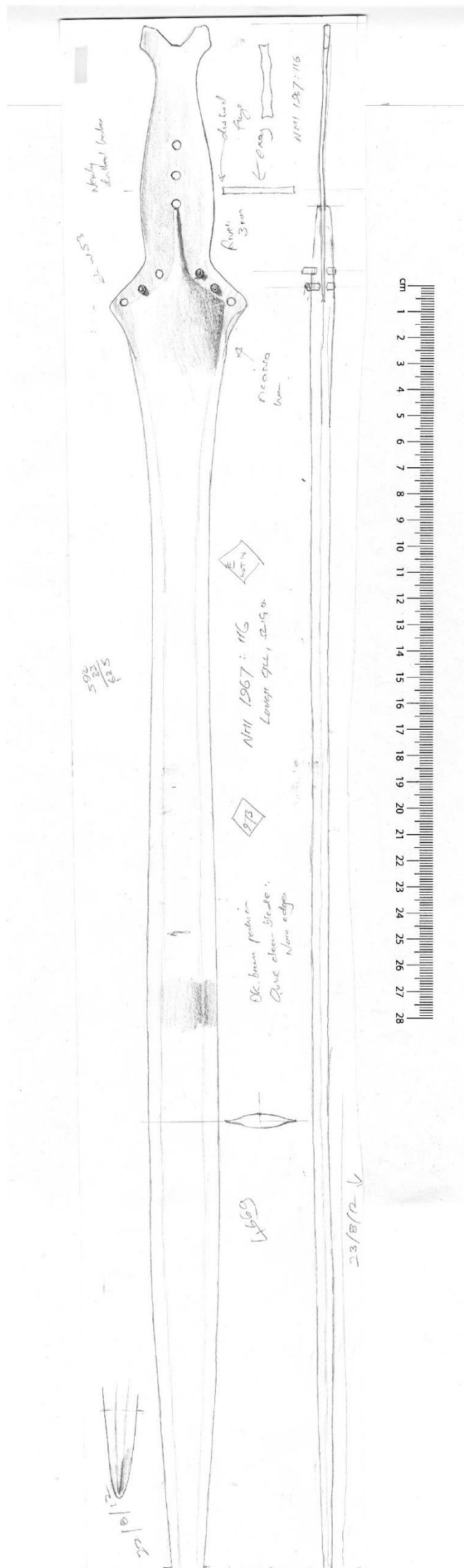


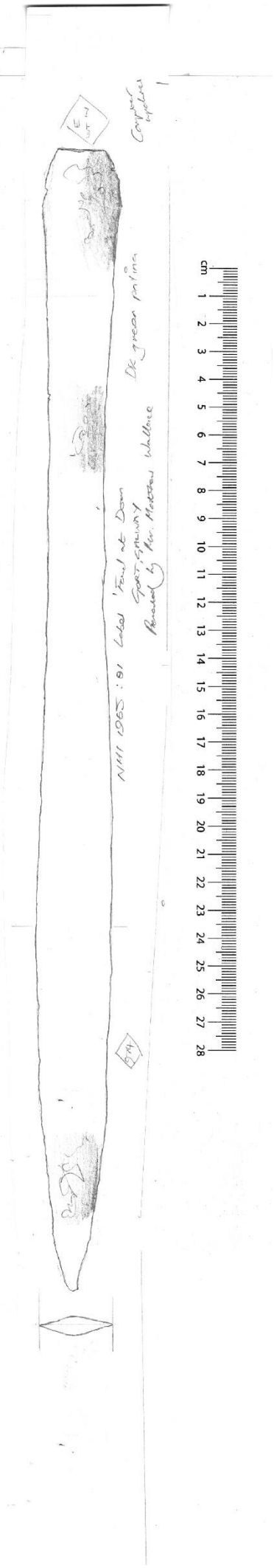


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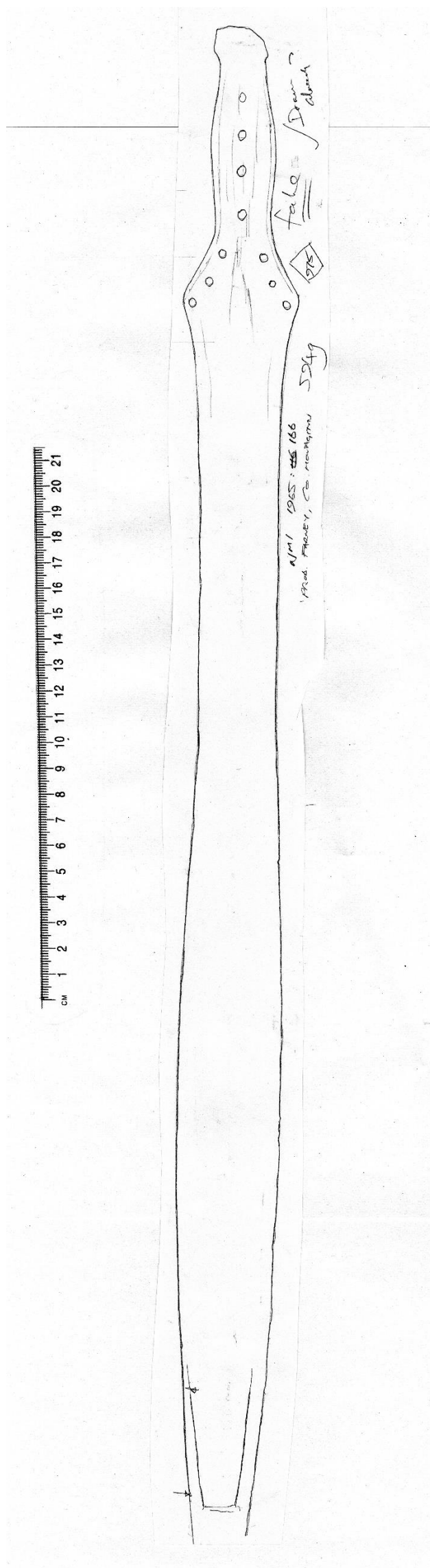


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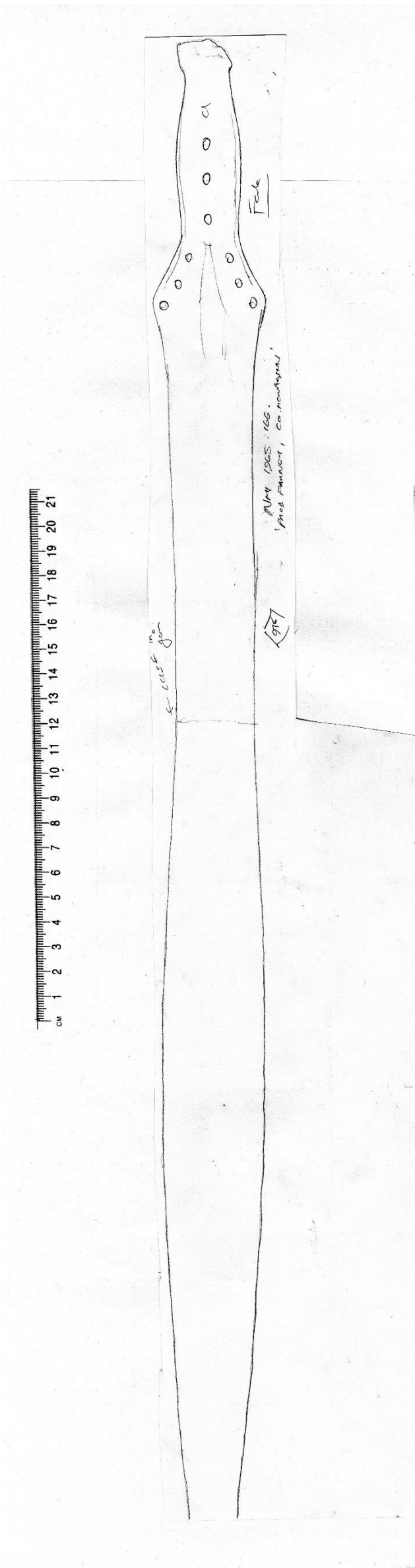




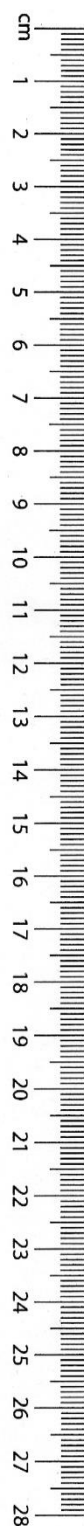
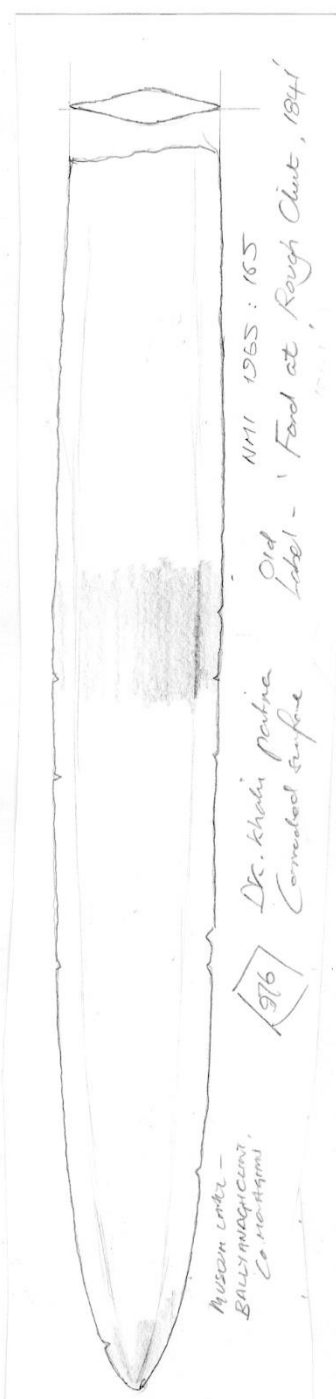
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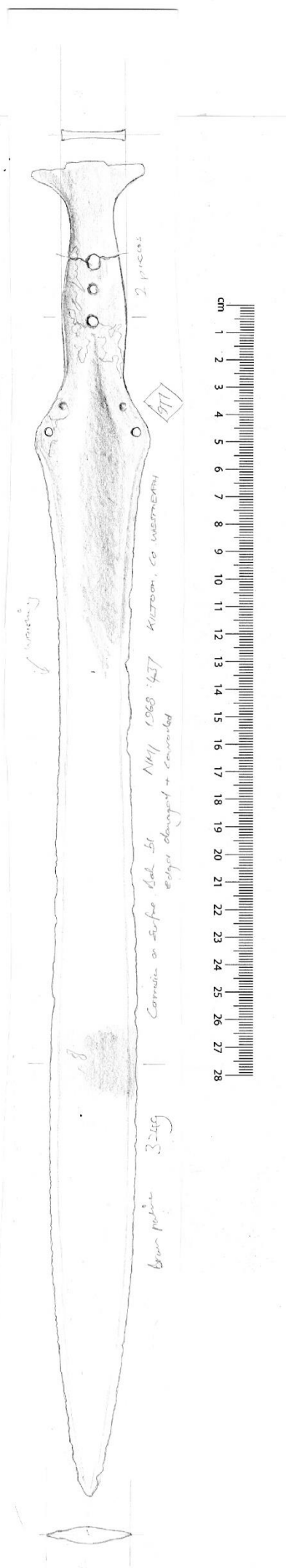
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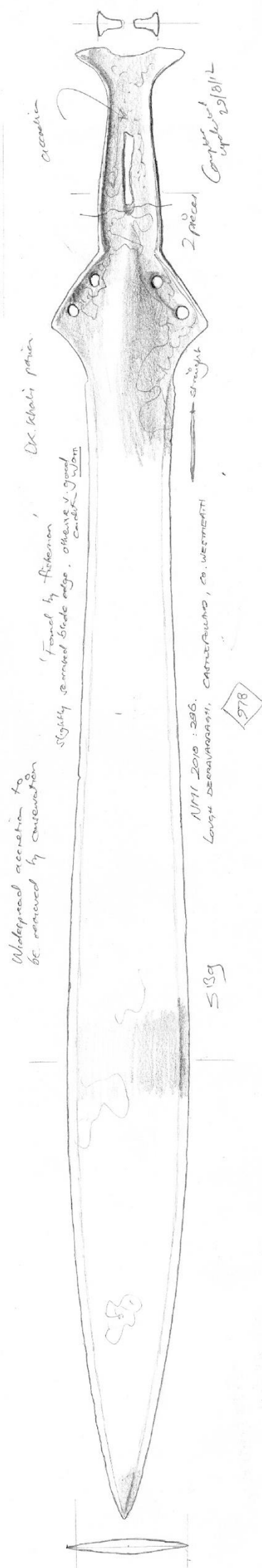
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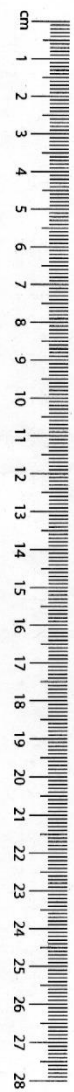
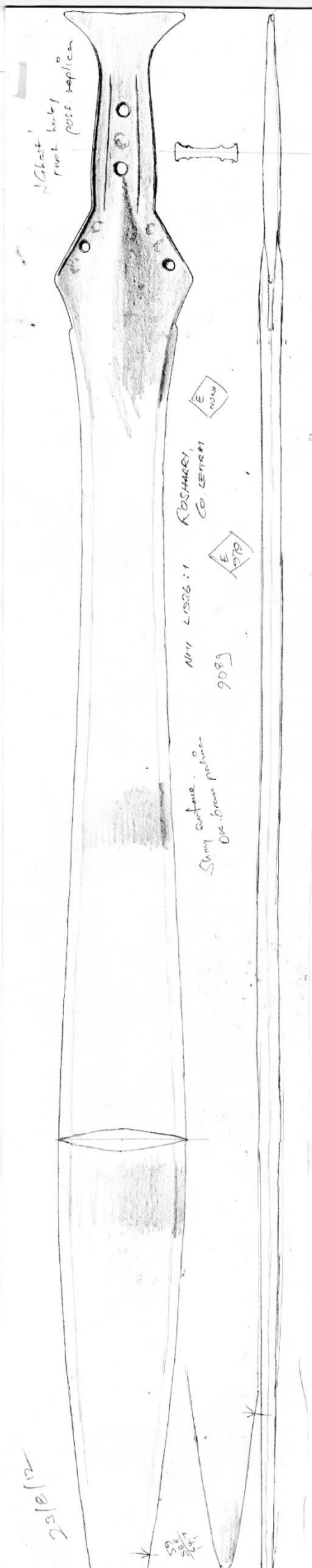
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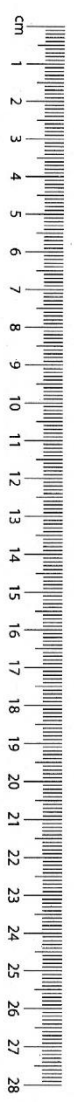
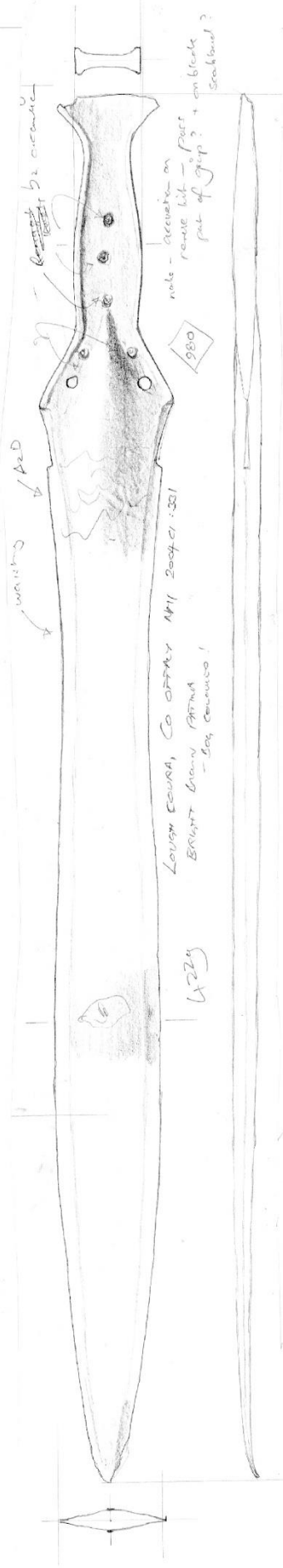
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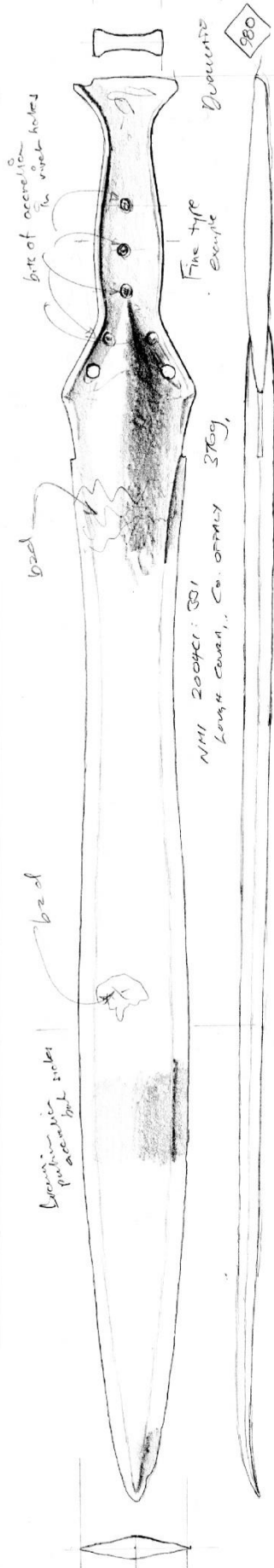
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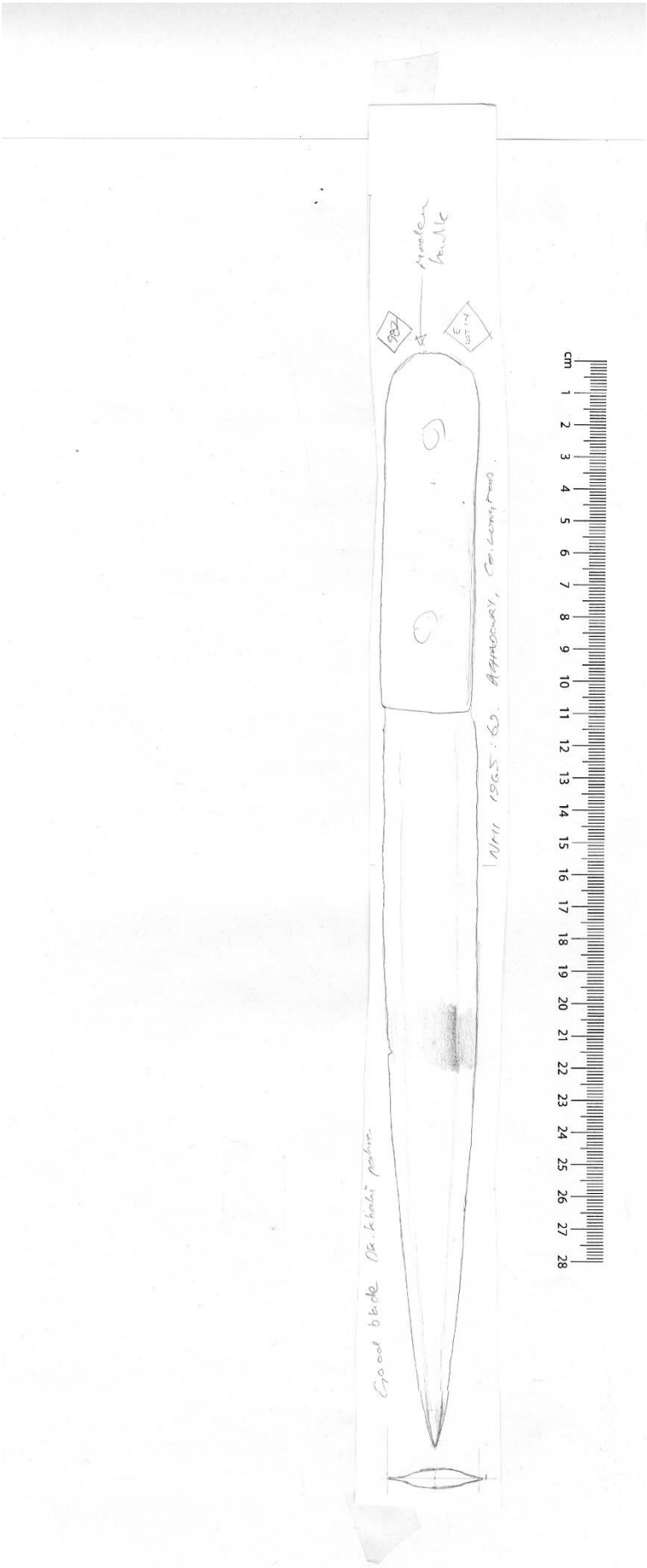


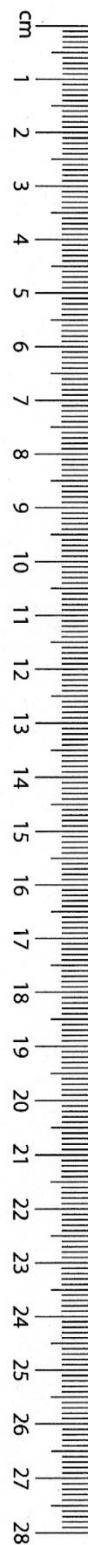
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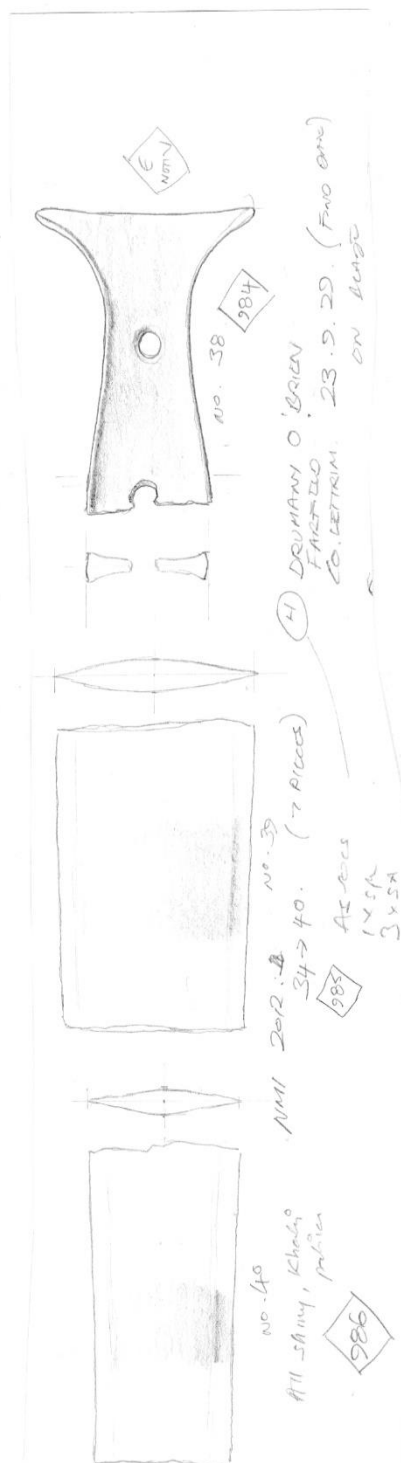
21/6/06

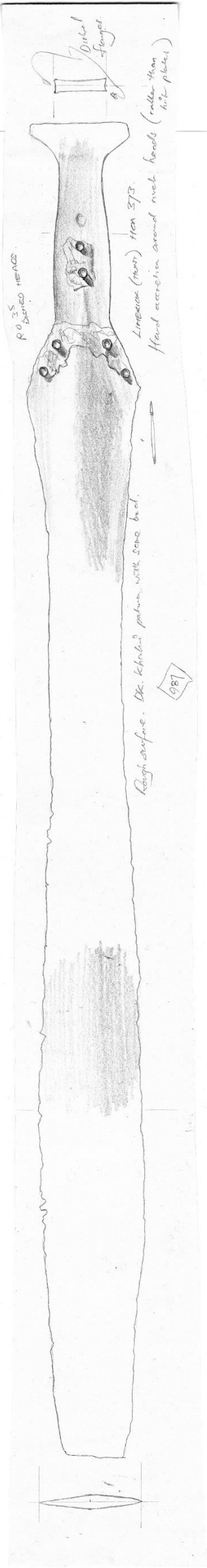






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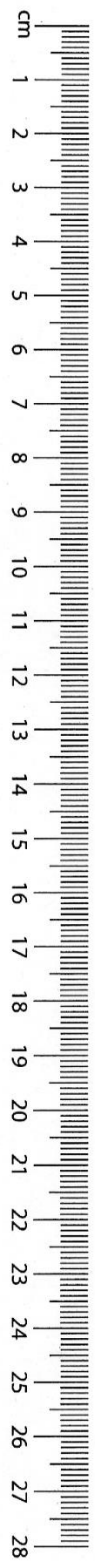
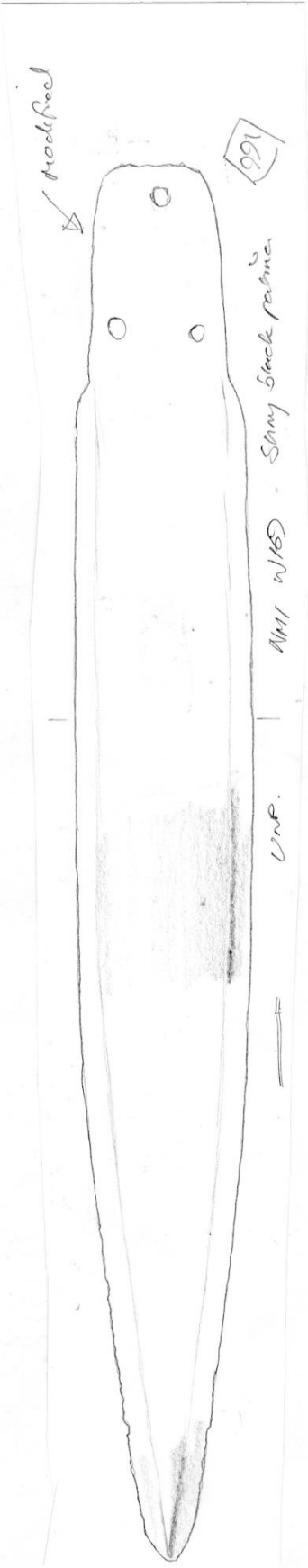




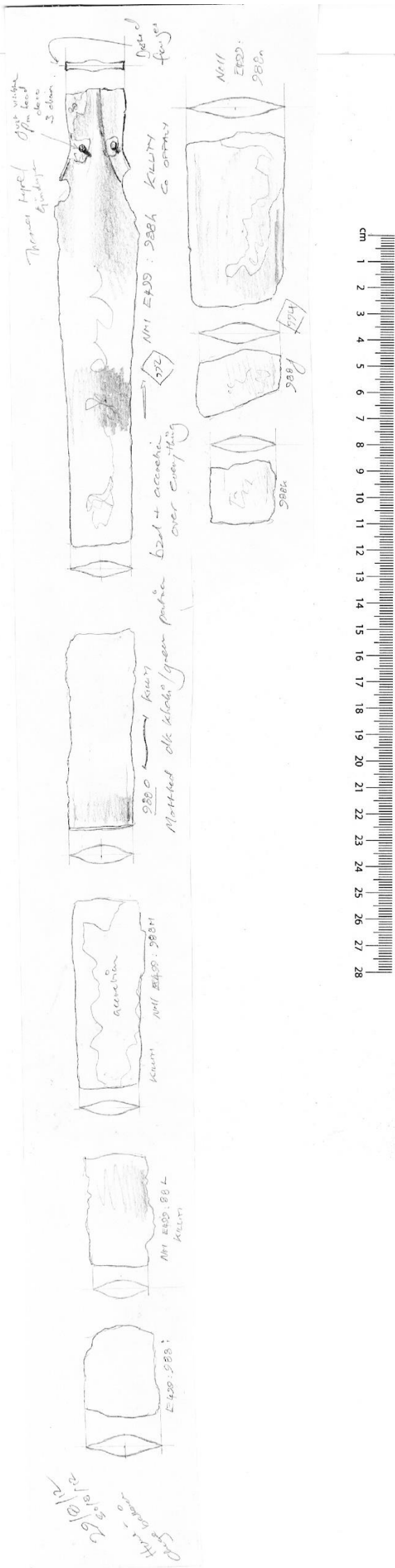
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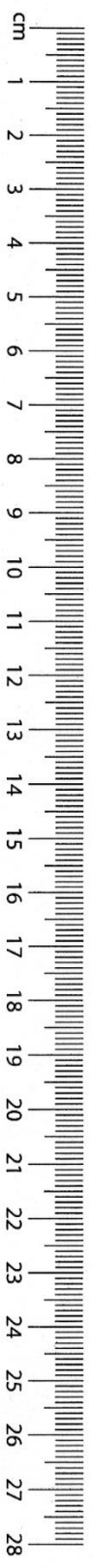
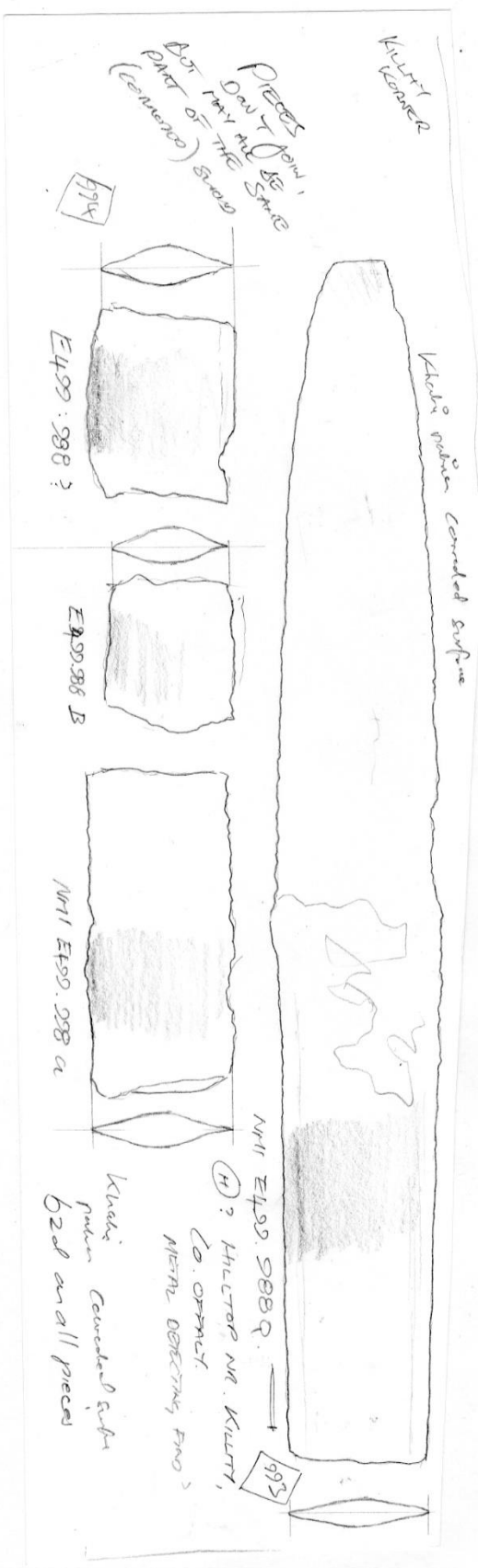


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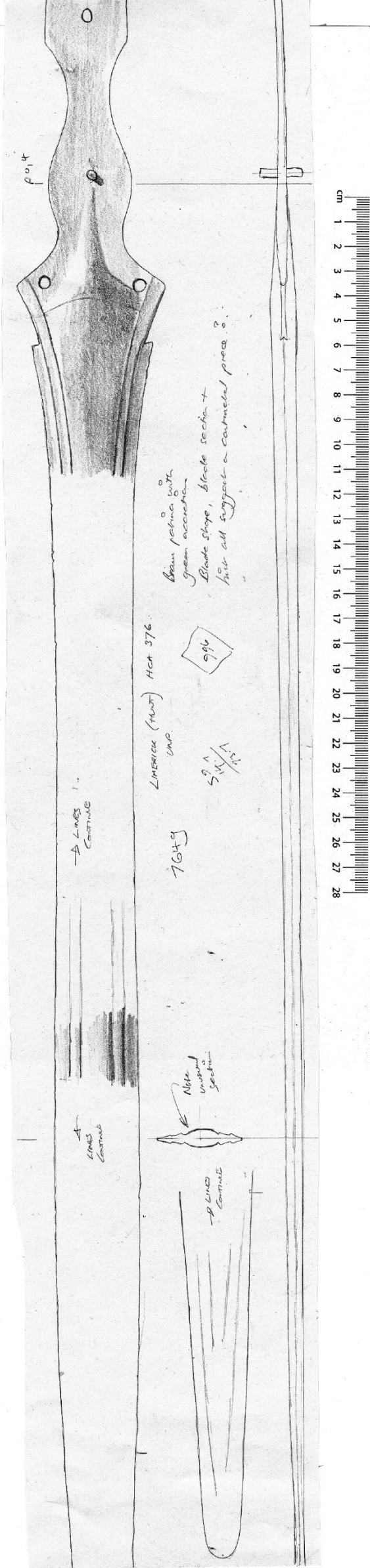


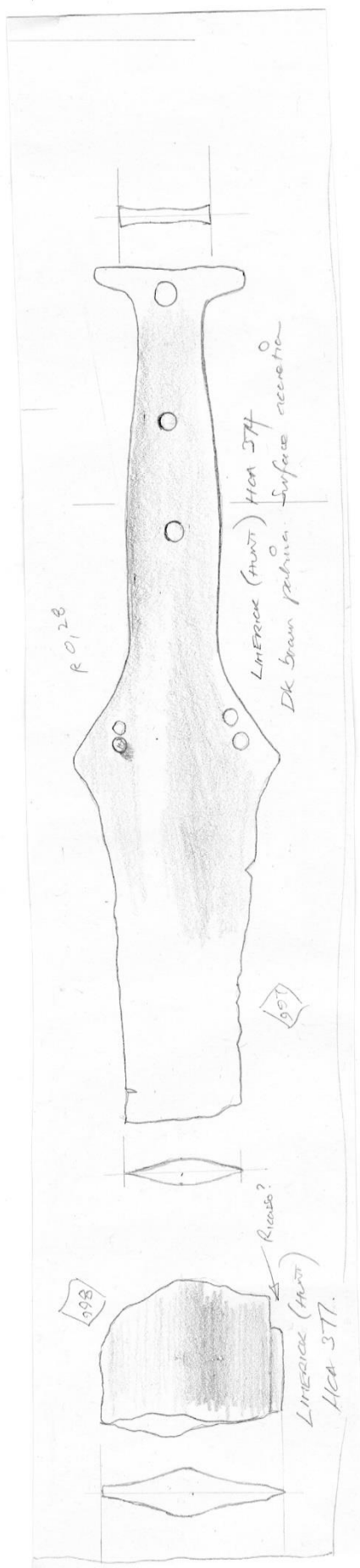
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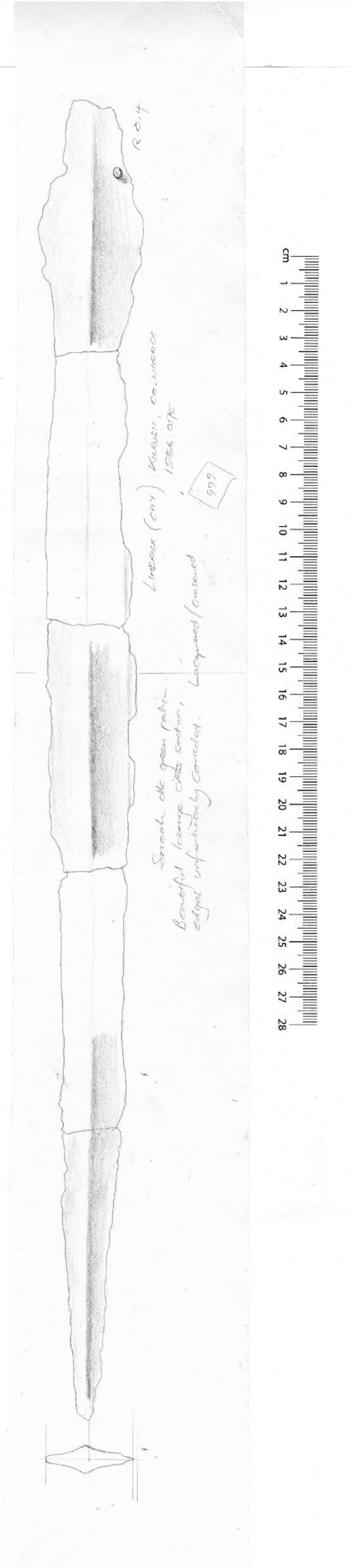




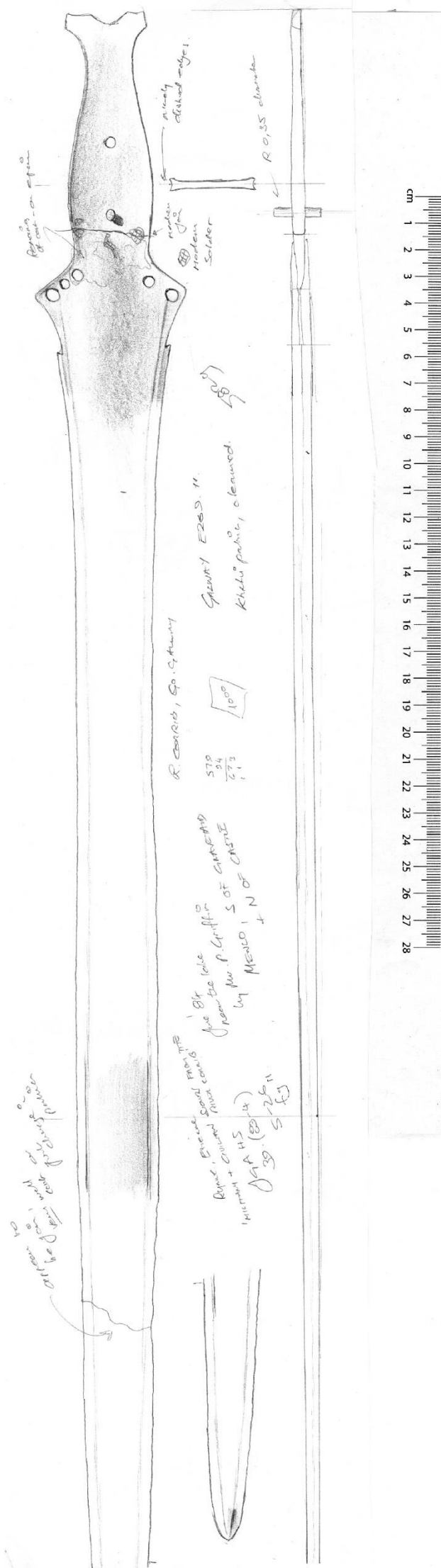
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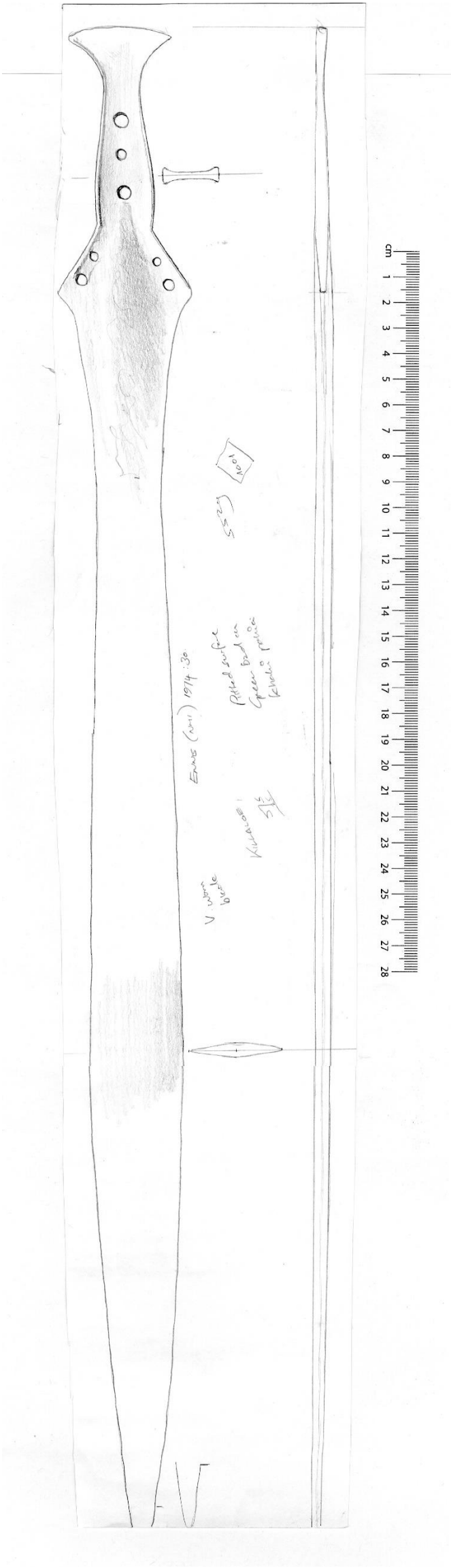




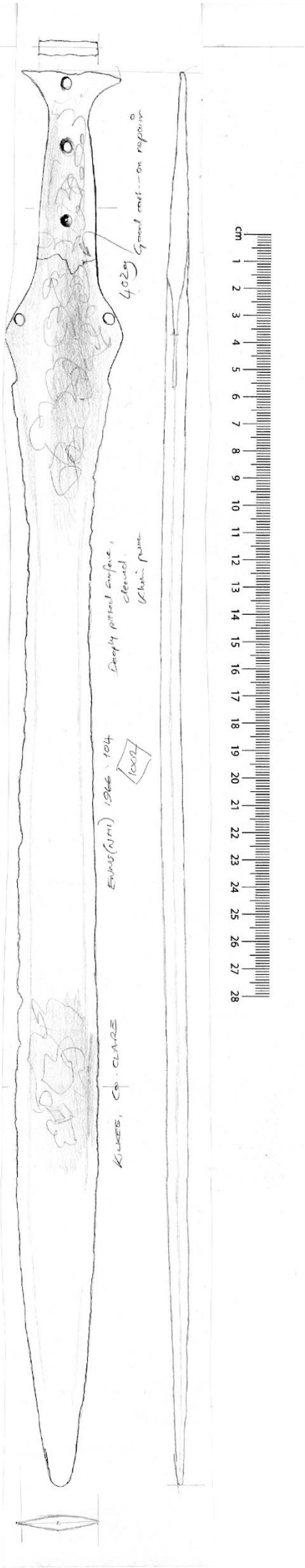
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1001



1002



APPENDIX C

SWORD MOULD FRAGMENTS FROM IRELAND

<i>White Park Bay, Co Antrim</i> (Nos 1 to 8).
Two hilt fragments, one shoulder, the rest blade. Jope (1953) has photographs of two of these fragments (one hilt and one point) in an article on the three swords from Ballycroghan. All fragments were found in the extensive dunes which line the bay, but details of the find circumstances are unknown.
<i>Dalkey Island, Co. Dublin</i> (Nos 9 and 10)
Both appear to be from the blade section. Found during excavations in 1959 (Liversage 1968).
<i>Old Connaught, Co. Dublin</i> (No 12).
This appears to be part of the blade section of a mould. According to Eogan this is the only extant example of a number of fragments found with other objects on a gravel knoll, surrounded by a broad ditch, in 1894. This may have been a burial mound.
<i>Bohovny, Co. Fermanagh</i> (Nos 13 and 14)
Two fragments from blade sections. According to Plunkett (1899) they were found in peat at a depth of 21 feet, associated with the remains of a crannog and possible buildings.
<i>Lough Eskragh, Co. Tyrone</i> (Nos 15 to 22)
All except no 22 appear to be from the blade section of moulds. No 22 may be a tang. Found during 1953 excavations of a crannog site (see also entry below for later finds).

Clay mould fragments for casting swords listed by Eogan (1965). Numbers refer to those used in his catalogue (1965, 176-179 and fig. 95).

<i>Dun Aonghasa, Co. Galway</i> (Waddell 2000, 218-221 and fig.91: Ó Faolain 2004, 180 and fig.44)
A spectacular fort built on a coastal cliff. Part of the blade section of a mould. Also found were moulds for other artefacts including spearheads, socketed axes, pins and bracelets, plus crucible fragments. All were inside a house the walls of which extended beneath the exterior wall of the fort
<i>King's Stables, Tray, Co. Armagh</i> (Lynne 1977 and 2008: Eogan 1993, 109: Ó Faolain 2004, 176 and fig.40)
Fifteen mould fragments found in 1975 in what the excavation report describes as a 'waterlogged hollow', originally a man made embanked pond, some 25 metres in diameter. All the fragments came from the lower gravel layers of two sections dug as trenches across part of the hollow. The pond lies to the north east of Haughey's Fort within the royal complex of Emain Macha (Navan), the historical Iron Age capital of the kingdom of Ulster. All the mould fragments are for blades and have oval cross

sections of Ewart Park/Eogan Class IV type. Parts of a human skull and numerous red deer antlers were also found in the same layers

Lough Eskragh, Co. Tyrone (Williams 1978: Ó Faolain 2004, 185 and fig. 47B)

In addition to those mould fragments listed by Eogan further excavations of crannog structures during 1973 uncovered mould and crucible fragments, five of which were sword moulds. All came from Site B, the same site which had produced the 1953 fragments.

Rathgall, Co. Wicklow (Raftery 1971 and 1976: Ó Faolain 2004: Waddell 2000, 272 and pl. 17a)

Part of a clay bivalve mould found during Raftery's excavations of this multivallate hillfort during the 1970s. The fragment appears to be from the point side of the widest part of the blade. More than 400 weapon mould fragments were found in total, plus lumps and bars of bronze, in an area with nine large hearths near the round house in the innermost area of the fort.

Mould fragments discovered since the publication of Eogan's 1965 Catalogue